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HENRY V. POOR, Editor.

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GEN. CHAS. T. JAMES, *For Manufactures and the Mechanic Arts.*

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PUBLISHED AT 54 WALL STREET, NEW YORK.

Saturday, May 12, 1849.

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Cincinnati, Ohio, Oct. 2, 1848. 44tf

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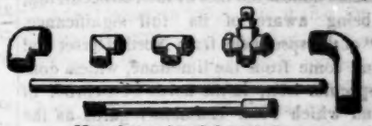

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CENTRAL RAILROAD COMPANY OF N. JERSEY.—At a meeting of the Stockholders, held at Elizabethport, on the first day of May, inst., the following persons were elected directors of the company for the ensuing year:

John T. Johnston,	Benjamin Williamson,
Stephen Vail,	William S. Wetmore,
Elisha Peck,	William E. Dodge,
John C. Green,	John O. Sterns,
Cornelius Vanderbilt.	

At a subsequent meeting of the Board, John T. Johnston, Esq., was unanimously re-elected President of the company.

This road is now in operation as far as Whitehouse.

Iron Ores and the Iron Manufacture of the United States.

VERMONT.

The iron mines of Vermont, from the advantage of their position near the navigable waters of New York, and also in consequence of the easy reduction of their ores, the hematites, have been much more extensively wrought than those of New Hampshire.

The principal metalliferous range, is a continuation of that of Connecticut and Massachusetts, coming into the state near its south-western corner, and passing northward to the shores of Lake Champlain, along which it continues to Canada. In width the formation appears to stretch across to the principal ridge of the Green Mountains. In some instances, indeed, it re-appears on the eastern side, with the same ores that characterise it on the west. I shall give a more particular account of the rock formations, as they appear in their continuation into Massachusetts and Connecticut, where I am more familiar with them, simply remarking now, that, so far as I can ascertain, there is little difference throughout the whole range, either in the general character of the ores or of the modes of their occurrence. I shall draw from the pages of Professor Adams' Report on the Geology of Vermont, for a considerable part of my information in this State.

The ore, he says, "is found abundantly along the western base of the Green Mountains, usually near the eastern margin of the limestone district, beneath the gravel or hard-pan, associated with yellow and red clayey ochres and porcelain clay, and overlaying a brown-yellow ferruginous limestone."

This position of the ore, in close connection with limestone, (usually found underlying the ore) and with no rock cover, is its most striking peculiarity in almost all places in Massachusetts, Connecticut and New York.

It is an interesting fact in relation to the limestones of Vermont, that those near the iron ores are the only magnesian varieties, so far as they have been examined in the course of the geological survey of the state. As will be seen in the remarks upon the iron ores of Massachusetts, it is the magnesian limestone, that is best suited to work with the hematites as a flux, and the occurrence of exactly this variety, only in connection with them, is one of those remarkable instances of the provident arrangement of the materials of the earth for the use of man, which science, as it progresses, is continually developing.

Prof. Adams notices the fact of their so occurring, without being aware of its full significance. He says, "of the specimens from North Dorset and Bristol, and some from the limestone, which contains the specular iron, in the north-west corner of Milton, and which Prof. Emmons regards as the calciferous sand rock of the Champlain rocks, it is remarkable that they are the only limestones which may be called magnesian among all that were analysed. They are all without distinct crystalline structure, and are very compact, with a brownish tinge and argillaceous odor, and are perhaps the last ones in the series of limestones, which would have been suspected of being magnesian. *In each case the specimens were taken from immediate proximity to the iron ores.*" He then gives the analyses of Mr. Olmstead, as follows:

	N. Dorset.	*Bristol.*	*Milton.*
Carbonate of Lime...	85·18	51·35	84·45
" Magnesia.	13·11	44·76	12·14
Alumina and Iron....	1·79	2·00	1·01
Insoluble matter, mostly silica.....	1·49	1·40	1·50
Water and loss.....		·49	·90
	101·57	100·00	100·00

The following table comprises the number of furnaces in the state, which, if not all actually in blast, will probably go into operation again in more prosperous periods of the trade. There are a few other stacks, which may be considered as abandoned. Several of these in the table are soon to go out of blast in consequence of want of demand for their products.

No.	*Locality.*	*Proprietors or Lessors.*	*Capacity. T. per ann.*
3	Bennington,	Hinsdale & Brock,	3,000
1	North Dorset,		1,000
1	Pittsford,	Granger,	1,000
1	Brandon,	J. C. Conant,	1,000
1	Forestville, (Brandon,)	Blake and others,	1,200
1	Troy,		500 ?
1	St. Johnsbury,		closed.
1	Plymouth,	Isaac Tyson.	closed.
10			

The three *Bennington Furnaces* are in the south-west corner of the state. They are situated together on good water power, and are leased by Messrs. Hinsdale & Brock. The works have been long established, and in former times have been prosperously conducted. It was here that the first hot blast was introduced in this country in the year 1833, as I am informed by Mr. Brock; and here too, the kilns or ovens, for charring wood, were first contrived and patented by Isaac Doolittle, now of Rochester, New York, December 14, 1829;—afterwards introduced at the Baltimore furnaces by one of the Ellicott family, they have thence been adopted at a great number of localities throughout the country. A plan of these will be given in the description of the Stockbridge furnaces of Massachusetts, where they are of rather superior construction to any others I have seen.

The ores for these furnaces are supplied from three different beds;—one seven miles distant, one five miles, and that which furnishes the largest proportion only a quarter of a mile. These are hematites, and the extent of the beds appears to be unlimited. But in consequence of a considerable per centage of manganese, particularly in the ores most convenient to the furnaces, some difficulty has been experienced in their reduction, and the quality of the iron is not like that made from the best hematite ores with charcoal. It is found to be suitable only for foundry purposes, and is not in demand at the puddling works. This excess of manganese, which is not an uncommon difficulty with the ores of this region, can only be corrected by a mixture of other ores in which it is deficient.

The iron from these furnaces is hauled in wagons to Troy, New York, a distance of thirty-two miles, at a cost of $3 50 per ton, and there it is sold to the founders. It might be taken to the railroad at North Adams, in Massachusetts, a distance of twenty miles, but without any saving in the whole cost of transportation to the Hudson River.

At present only one of the furnaces is in operation, and this will soon stop for better times. The supplies of charcoal having become somewhat difficult to obtain, only two of the three furnaces have been in blast together for some time; and it is not likely that more than these will soon run at the same time. The cost of charcoal, delivered, is estimated at seven cents a bushel. The usual consumption to hot blast furnaces like these is 150 bushels to the ton. The hematite ores cost about a dollar a ton to mine, besides the expense of hauling to the furnace, and two and a half tons is a fair allowance to the ton of iron. Besides these items, $2 50 is the estimate for labor; and about $3 for other items of repairs, superintendence and interest.

Two of the furnaces are 40 feet high, one 9, and the other 9½ feet across the boshes. They are blown with hot blast;—the blowing apparatus consisting of eight tub-bellows, 4 feet diameter and 22 inches stroke; working alternately, no regulator is required. They are driven by a water wheel 22 feet diameter, and 12 feet length of buckets. The furnace in blast now makes about 6 tons of iron a day. In the table I have allowed for two furnaces making 1,500 tons per annum each.

Beside the hematite ores, there is a vein of magnetic iron ore within 2½ miles of the furnace, which has never been proved. It is thought to be a small vein from one to two feet thick.

In Bennington are manufactured fire brick, which are said to be sufficiently refractory for use, instead of hearth-stones, for the furnaces. They are prepared from a clay found frequently among the mica and talcose slates of the Taconic range, which is ground and mined with quartz and fragments of burnt brick.

The ochre associated with the hematite ores is mined to some extent at Bennington:—about five hundred tons per annum being put up in casks and sold for about twenty dollars per ton. It is first thoroughly washed to free it from the sand associated with it, which settles to the bottom, is then washed again, and the water being drawn off, the ochre is left clean, ready for drying, and subsequent crushing in a stone mill.

The furnace in *North Dorset* is supplied with ore from east Dorset, (three miles from the furnace) and Wallingsford. The east Dorset ore is associated with ochres and with clay and is much comminuted. About three tons of ore are required for a ton of iron. The Wallingsford ore bed, lying in a steep hill, is opened by an adit running in an easterly direction. The adit passes through a bed of arenaceous ferruginous limestone, which dips 60° east, and then for fifteen rods passes through red and yellow clayey ochres and white clay, when it reaches the fragmentary bed of manganese and iron ore. The clays and ochres are more or less distinctly stratified conformably to the limestone which they overlie.—Much of the ore of this mine, called "black ore," contains a large proportion of manganese. Iron made from it is very white, brittle, and extremely hard, scratching common window glass. The iron made from the purer ore is very tough.

Mr. Olmstead, who made the analyses for the survey, gives the following as the composition of this "black ore:"

"Black ore."

Per-oxide of Iron.....	71·30
" " Manganese····	12 93
Alumina.....	trace
Selica.....	3·00
Water.....	12·50
	99·73
Metallic Iron.....	49·34

An ochreous *vein* in Dorset included in the limestone, is thus described by Professor Adams: "The direction of the strata is north and south, and the dip about 12° east. There are two systems of joints, which, with the planes of stratification, divide it into rhomboidal blocks. The vein has a direction of N. 30° E., is nearly perpendicular and is about three feet wide, running through a hill, which is parallel with and near the western ridge of the Green Mountains. The vein has been opened by Mr. Curtis at the northern extremity of this hill, a few rods east of his furnace on Otter Creek. It has

been penetrated horizontally 150 feet, to a depth under the hill of 100 feet. Notwithstanding the extent to which it has been penetrated, it was found to be, with the exception of a thin streak of solid ore in the middle, in a state of perfect disintegration, consisting of clayey ochre, yellow above and reddish beneath. Mr. Curtis has seen the same vein nearly half a mile south of this opening.

On many accounts this is a remarkable case. It is the only example of a true vein of ore, which we have seen in this formation."

The furnace in *Pittsford* stands on a bed of ore, but was not discovered till after the furnace was built. It is supplied from Mitchell's ore bed in Chittenden, three miles to the north-east. The ore at the furnace has no other cover than the drift formation; it is in ochre and clay, which rest on limestone. Mr. Granger, the proprietor, considers the proximity of limestone indispensable to success in finding ore.

Mitchell's ore bed is covered by sixty feet of drift. It rests against ferruginous limestone, which dips 35° east, and contains a large irregular vein of quartz. Galleries have been driven north and south from the shaft at the depth of fifty-four and sixty-two feet from the surface. They are in clayey ochres, white clay, and fragments of iron ore and manganese. At one point "*a solid bed of ore*" has been struck, which proves to be twelve feet in thickness. It rests against the limestone, separated only by a layer of yellow ochre an inch or two thick. Over the bed of ore are the usual clayey ochres. The bed is conformable to the limestone strata, but it was struck at its northern termination, in which direction it gives place to the common irregular collection of clays and ores. To the south, and on its line of dip, Professor Adams thinks it will continue an inexhaustible solid bed of ore. This may be the case, or it may prove a larger bunch of a purer variety of ore than the average of the mine, analogous instances not being extraordinary elsewhere. The hematite beds of Massachusetts and Connecticut contain enormous masses of solid ore, in which galleries are driven by blasting as in solid rock. The ore in this mass appears to be of very excellent quality, much better than the rest taken from the mine, which is described to be mixed with manganese.

The analysis of Mr. Olmstead gives—

Per oxide of Iron	84·90
Alumina	47
Silica	75
Water	13·88
	100·00
Metallic Iron	58·66

To be continued.

The Tuscany Furnaces.

The rich specular iron ores of the Island of Elba on the coast of Italy are taken to the main land, opposite, (Tuscany), and there smelted. The few small furnaces employed have produced results of an extraordinary nature—being only about 27 feet high and 7 feet bosh. One of them has run continuously over 16 tons of pig iron per day. As the same principles adopted there may be introduced to advantage at many localities in this country,* and probably with equal results, the subject seems so important, that I propose in a few numbers of the Journal to give the substance of the information concerning them, that I have at hand. This is contained in the valuable French Journal, the *Annales des Mines*, vol. xvi., for the year 1839. The article on this subject is by M. N. Garella, mining engineer.

The Tuscany Iron Works depend wholly on the ores of Rio (Island of Elba). These works are blast furnaces and forges, for converting the pig into forge iron. The furnaces, in number four, on account of convenience to the mines, are placed as near the shore as proper sites can be found for water power, supplies of wood, etc. The first of these, south of the city of Livournia, is the furnace of *Cecina*, situated on the stream of the same name, about 2½ miles above its mouth. The next is the furnace of *Follonica*, at the head of a bay opposite the Island of Elba. The third, that of *Valpiana*, is situated about nine miles from Follonica, on the road to Massa. And the fourth, *Pescia*, is on the frontier of the Roman States, between Orbetello and Montalto, nearly four miles from the sea; but a navigable canal extends a part of this distance. The only furnaces visited and described by the author are the three first named, all of which belong to the Grand Duke of Tuscany.

Here follows a particular description of the mine and mode of working it at Rio; which I shall make only a few extracts from. The ore is found in an immense mass of different oxides of iron; but principally the specular ore. This mass sometimes exceeding 400 feet in width, and extending to an unknown depth, passes in a north and south course from the shore of the island opposite Italy, and buries itself in the flanks of the mountain called Mount Giove. The workings are from three quarters of a mile to a mile from the sea. The ore is contained in talcose slate rocks and quartzose sandstones, which are sometimes very hard. These are the prevailing rocks on this part of the island. The talcose slate runs into the ore, dividing it into many beds or veins; but soon giving out, it is seen this division is only apparent; the metalliferous parts all belong to the same mass.

The road up to this mine from the shore is almost wholly made of fragments of ore, and would pay well to be worked itself, if the mine were not as rich as it is.

The excavation of this great mass is carried on open to the day; it is worked by stopes from 3 to 5 yards in height, and of width varying with that of the body of the ore. It is broken down by picks, wedges, hammers and blasting. The collection of materials is far from being homogenious in its whole length. Besides the compact and micaseous specular ore, brown and red oxides of iron are met with, and ochreous clays, but in small quantity. The compact specular and brown ores are the hardest to mine.

There are six classes of workmen, including the captains or overseers. The other five are, 1st, for drilling and blasting; 2d, pickers; 3d, hammermen; 4th, for uncovering the surface; 5th, for running off the cars of refuse matter.

Of the captains or overseers there were employed in May, 1838, six, and of the other hands, 8, 8, 19, 45, 101—making in all 187. The owners send the ore down to the water on the backs of asses conducted by children, each child taking two of them. Three hundred pounds make a load.

Of the varieties of the ores named above, the compact specular iron is the richest and the most favorable for reduction in blast furnaces. The micacious varieties, particularly those which crumble easily to powder, are preferred for direct treatment in the small forges (bloomeries?). There are, besides, two other varieties—one consisting of fragments of ore washed down into the sea, and afterwards collected along the shore; and another of the dust of the micaceous ore, which forms the beach of Rio. These are sold exclusively by themselves, principally for the small forges of the Neapolitan States.

The other varieties, from the mine, are mixed, so as to produce a nearly uniform quality of from 60 to 65 per cent.; and are then ranged along the beach in heaps for sale without selection, at the price of 225 lires the cento ($3 10 per ton) for home consumption, and 350 lires the cento ($4 82 per ton) to foreigners.

The furnaces and forges using the ores are in Tuscany; Piemont; the environs of Genes; in the Roman States; the Kingdom of Naples; and lastly, Corsica.

The quantity sold from 1830 to 1838 was as follows:

1831.	1832.	1833.	1834.	1835.	1836.	1836-7.
T. 11,555	15,953	14,714	19,919	17,653,	18,060	26,328

Since 1833, more than half of this has been consumed by the three Tuscany furnaces, the subject of this article.

The *fuel* used by these furnaces is charcoal of not very uniform quality, being made of green and white oak, and of shrubs, such as the myrtle and "*l'arbousier*." Chestnut is also employed: but this is generally reserved for refinery fires, being preferred for this use to the oak-coal; as this is to the other for the blast furnace.

The charring is effected in small heaps of 2½ to 3 cords in each. The coal weighs about 15½ lbs to the cubic foot, and is worth, (calculating from the Italian measures,) $7 for 2200 lbs., which is about the weights, as we estimate coal, of a hundred bushels. At the rate of 15½ lbs. to the cubic foot, the bushel would have to contain 2454 cubic inches for 100 of them to weigh 2200 lbs. The standard bushel of New York is 2211·84 inches; this, heaped, would more than equal 2454 cubic inches. So that charcoal costs about the same as at many of our furnaces in Massachusetts, New York, Connecticut and New Jersey.

The *flux*, where it can be had, as at Follonica and Valpiana, is a light, calcarious tufa, a porous, open limestone. At the other establishments, where there is only hard limestone to be had, this is first burned to lime. Being used with the ore only in the proportion of 6 per cent., this preparation is deemed necessary to ensure a thorough mixing with the charge.

The ores are roasted for six or seven days in ovens. Care is taken, that they are not melted on the surface, as too much iron then runs into the cinder. they are then broken and screened; and the dust, which passes through the sieve, is washed in a current of water. This separates the fine portions, which would, if put in the furnace, be carried out by the blast. This washed ore is carried wet to the

* The importance of this subject can hardly be overrated, when it is remembered there are furnaces in this country of larger size than the Tuscany furnaces, and provided with excellent ores for making a large yield, which produce only from 1½ to 2½ tons of iron a day, as those in South Carolina and Georgia.

While connected with the Stockbridge furnace in Massachusetts, I was in the habit of reading these articles to Mr. Alger, till he had become familiar with them; when he adopted the improvements they suggested, and more than doubled the yield of his furnace. One of them was actually making at the rate of 94 tons a week, when the lining gave out. The stack was 37 feet high and 9½ feet bosh.

I recommended the form in a Report to Samuel Ward, Esq., for the Iron Mountain furnaces in Missouri. A similar form was adopted, stack 26 feet high and 7 feet bosh: and the yield has been for weeks over 70 tons a week to the furnace.

tunnel head; and is used in the proportion of a third or a fourth.

The next number will commence with a description of the furnaces themselves. H.

Virginia.

The citizens and Common Council of Lynchburg have subscribed $500,000 to the Stock of the Lynchburg and Tennessee railroad.

The Louisa railroad is now opened to Charlottesville. Passengers from Richmond in the morning will now reach Charlottesville to dinner.

Culture and Manufacture of Cotton.

The work of GEN. JAMES, to which we referred in our last paper, and from which we made liberal extracts showing the profits made by English manufacturers upon cotton fabrics consumed in this country, discusses fully the question as to the profitableness of this branch of industry in the New England States. We quote as follows:

"Let us now take another view of this subject and call the attention of the cotton planter to the principal manufacturing states in our Union; and where, we venture to predict, he will find the balance against them, as great in proportion, as in Great Britain; although labor is considerably dearer in this country than in that. Could or would the cotton planters of this country, employ all the capital and labor, now appropriated to the culture of cotton, to a business as lucrative as the cotton manufactures of Great Britain, they would, in the ratio of the present market value of that article now shipped to the British market, realize at least $120,000,000 per annum, instead of $30,000,000 now returned to them. This difference appears enormous, but such is the fact.

The entire cotton crop of 1840, as per official statements and returns, was 790,479,275 pounds.—Assuming 25 per cent. for the increase since that period, which is probably, a near approximation to the truth, the crop of 1848 was 988,099,093 pounds. Assuming also, six cents per pound as the return to the planter, the entire amount realized for the crop was $59,285,945 58. Though persuaded that this estimate is a high one, we will yet increase it, and put it down, in round numbers, at $60,000,000, for the sake of convenience. Taking our former estimates as a basis, to produce this quantity of cotton would require 3,991,036 acres of land, the value of which, at $25 per acre, would be $99,775,900.—There would also be required, the labor of 395,200 hands. The value of this number of able bodied slaves, say as before, $500 each, would be 197,600,000, and which, with the cost of the cotton gins, mules, &c., &c., will amount to at least $300,000,000. Let us now inquire what is done by the appropriation of capital, labor, and skill, together with the material, in the cotton mills of our principal manufacturing states.

In five of the New England States, there are employed, about 57,000 operatives, manufacturing cotton fabrics. The capital employed in the business, is estimated at $42,982,120, and the gross product, at $40,918,143. Deduct thirty-three-and-a-half per cent. from the latter sum. and the cost of all the materials, labor excepted, say $13.639,381, and you have as the net product of labor, $27,278,762. This sum is a trifle less than the entire amount received for all the cotton they ship to Great Britain. Yet this is realized on the employment of a capital of something less than $43,000,000; while the planter employs, as has been seen, to produce that cotton, capital in land, slaves, and fixtures, to the amount of $150,000,000. The difference in the interest on these two sums, per annum, at 6 per cent, is no leis than $6,420,000, a very desirable item in favor of the eastern manufacturer. Again, to produce that result, we have also seen that the planter must employ at least, about 180,000 hands, able bodied persons; whereas, the eastern manufacturer employs only 57,000, being less than one-third part of the number, and who create, by their labor, more wealth than the former. In proportion to the capital and labor employed, the planter should realize more than thrice the amount of the manufacturer, but does not, in fact, realize quite as much. Yet, no less than two-thirds of the whole number of operatives in cotton mills are women and children. These are plain and unembellished facts, based on, and borne out by, the most authentic data that can be obtained; and which we shall, hereafter, attempt to illustrate more fully, and verify more substantially, by the exhibition of practical details and known results, too simple to be misconstrued, and too well authenticated to admit of doubt. In fact, the superiority in the increase of the wealth and population of the manufacturing states, compared with that of the cotton growing states, affords almost incontestible proof of the fact, that manufactories create wealth with much greater rapidity than the cotton culture—if not, then whence arises the difference? for there is certainly a great difference. Labor and skill are more judiciously distributed in the manufacturing states than at the south, and more economically applied. With the planter, the object is, to work a certain number of hands: to make all the cotton with them that he can. and to sell it for what others may be disposed to give. The market is glutted—cotton must be sacrificed at a low price. Instead of diverting a portion of his means to some other and more profitable object, he exerts himself to produce more cotton this year, that by increase of quantity, he may make up the loss in price, instead of which, he enhances the supply, reduces the price still lower, and still continues at the mercy of foreign brokers. As a general thing, this is not the way with the people of the manufacturing states. Their object is, to pursue any certain branch of business no further than it is found profitable. When it ceases to be so, they relinquish it, and try their hand at some other. For this reason, labor is properly distributed, and economically applied. In other words, people are careful that labor shall be employed on objects most productive, and in such a way as to ensure the greatest result in the shortest time. So of skill, materials and capital.

Would the northern climate admit of the culture of cotton, and had a Yankee, in either of the New England States, a cotton plantation, with all the requisites for the prosecution of the business, the moment he found he could make more money by the manufacture of that article than by its production, it would be farewell to cotton growing; and the next thing you would hear on his premises, in the way of business, would be the clatter of the loom and the hum of the spindle. Yankee folks are said to be full of notions; and such notions constitute the great secret of their prosperity. If southern planters would act on a similar principle, they would much benefit themselves. A gentleman well versed in the statistics of cotton growing in the finest cotton regions of the southwest, has calculated that, to supply cotton for a mill of 10,000 spindles, say 1,800,000 pounds per annum, would require the product of ten of the best plantations in the country; which, with their slaves and fixtures, would be worth $738,000. The product, as above, would amount to $108,000; from which, deduct the cost of operating, such as overseers, materials, carriages &c., which he estimates at $28,000, and you leave to the planters $80,000. The mill to manufacture this cotton will cost, with all its machinery complete, $210,000, and require a working capital of $40,000—or say the entire capital, including mill and machinery, would at the outside, be $250,000.

To manufacture the above amount of cotton into sheetings of one yard in width, the fineness of No. 14, will cost, including the cost of the cotton, steam power, transportation, insurance, labor and in fact, every item of expense, a little short of $232,000,000 which add $15,000, the interest of the capital, at six per cent. per annum, and you have the entire cost of manufacturing the above 1,800,000 pounds of cotton. This cotton will make 4,500,000 yards of cloth; which, at 7 1-2 cents per yard, a low price, by the way, will be worth $337,500, leaving a balance, after having paid every expense, of about $106,000. Thus, you see, by the labor of 275 operatives, mostly women, girls, and boys, there will be created, actual wealth to the amount of $106,000, from 1,800,000 pounds of cotton, besides the amount paid to them for labor. To produce that same cotton, worth in market $108,000, required the labor of no less than 600 able bodied hands, besides one-half that number of horses and mules. The capital employed to produce this result, is $738,000. The manufacturer's capital is but $250,000. If, therefore, the planter could by any means, remove these plantations into one of the New England States, with all their slaves, fixtures, &c., and they should continue to produce cotton as abundantly as on the Mississippi or Tombigbee, though now nominally worth towards a million of dollars, the owner of the cotton mill which cost but $250,000, would not exchange it for them, and would evidently be a loser by the bargain if he should. This will at once appear obvious, when we state that, over and above the cost of working the plantations, already named there would be expended, for overseers, &c. $20,000 more; and reducing the net income to $88,000—less by $18,000, than the net product of the cotton mill. Under these circumstances, the mill owner would much rather keep his mill, and employ his hired operatives, than to take in exchange the plantations with their slaves, &c. The reason—he can make the most money by his mill. But this comparison applies not only to a cotton mill in Massachusetts, New Hampshire, Rhode Island or Connecticut, but even to the best cotton growing state, at the side of the best cotton plantation in that state. This statement reqnires no labored argument to conform it. Every species of property designed for the creation of wealth, is valued in the ratio of its productiveness, without respect to its actual cost. One plantation may have cost fifty thousand dollars, and require an outlay of twenty thousand dollars per annum to work it. Another may have cost twenty thousand dollars and be worked at an expense of only five theusand dollars. Without respect to this difierence of cost and expenditure, every one knows that, if the cheaper establishment yield a greater product than the other, it is, of course of most value to its possessor. Thus, if a planter owns cotton lands which cost, with all his slaves and fixtures $700,000, or more, and yield a net profit of $80,000 per annum, the cotton mill at his side, the capital of which is but $250,000 including the cost of the establishment itself, which yields a net profit of $100,000, is, intrinsically worth more to its possessor than the planter's cotton lands and slaves. Every planter knows this common place statement to be true.'

He then goes into a history of the cotton manufacture. The first attempt at spinning cotton in the world was in 1767. It is about sixty years since the work was commenced in the United States, which was begun in Rhode Island; but made no progress till Slater's arrival at Providence. His genius changed the course of New England industry, and laid the foundation of the cotton manufacture.

The following paragraphs show the rapid growth, the extent and profits of this branch of manufacture:

"In the year 1839, according to the data appended to the United States Census of 1840, there were in operation, in Maine, 29,736 cotton spindles—in New Hampshire, 195,173—in Massachusetts, 669,095—in Rhode Island, 518,817—in Connecticut, 181,319—making, in all, 1,590,140 coiton spindles in operation in those five states at that time. Since that period the number has bern increased twenty per ct. at least; and there can therefore not be a less number now, than about 2,000,000, nearly. The manufacture of cotton was commenced in Rhode Island about 1791, but its progress for many years was extremely slow. We will assume the year 1810, as our starting point, at which time it had begun to put on the appearance of some importance. Thus, reckoning to the close of 1789, we have a range of 40 years.

Again, assuming that in 1810, there were 50,000 spindles in operation, then the medium or average number for forty years, would be something over 900,000. Distribute these in 90 mills of 10,000 spindles each, and each mill creating wealth at the rate of $100,000 per annum, or which is the same thing, adding that amount to the value of she raw material; and which is nearly one-third less than the amount stated for the mill before alluded to, and we have $4,000,000 in forty years. Hence, the ninety mills would add, and probably have added, at least $360,000,000 of wealth or capital to the community, in forty years, by means of the combined operations of labor, skill, and materials, aided by capital and credit. It is true, there have been fluctuations in the business, and occasional failures; as there are, and ever will be in the most lucrative business ever known. But most persons who have entered into

this have made money by it; and, at any rate, failures or no failures, the wealth created by it is in the community—the product of labor skill, and materials—and if the foregoing estimates are within the limits of truth, and they are believed to be, then, by cotton manufactures alone, the above five states have added to the stock of wealth no less than $360,000,000! Permit us now to inquire—Have the whole ten cotton planting states done as much by the culture of their staple production, or any thing like it, in proportion to the labor, skill, materials employed? Let the comparative estimates on the culture of cotton, and its manufacture, in the forgoing pages, furnish the reply. Such as has been stated, is the example set by New England, though commencing with a deficient capital even for her ordinary pursuits; with her system of credit to aid, in the production of the most valuable returns from the labor, skill, and real capital of the country. Can any reason, even a plausible one be given, why southern people should not do the same? Their means are more abundant than were those of New England at the commencement of the cotton manufacturing business in this country. All that is wanted is enterprise. There certainly could be no sufficient reason why a number of planters, having available property of the value of half a million dollars, could not raise on that property, the sum of two hundred and fifty thousand, to prosecute a business, the profits of which would be almost certain to return one hundred per cent. on the outlay in the short space of two years at farthest. Especially might they do this, when known, as known it is by practical experience, that that business would probably enhance the value of property in possession, fifty to one hundred per cent. Southern planters, considered men of wealth, find little or no difficulty in extending their credit to any desirable amount, in the purchase of land or slaves, or both. It would be quite as easy for them to do so, if necessary, to erect manufactories, and their credit and funds would, in such case, be applied to an object much more productive."

What gives force to the suggestions of Gen. James is the great caution that marks his statements. We have taken pains to look into the statistics of the cotton trade and the cotton manufactnre, and we are quite certain that all estimates put forth by Gen. James are inside the actual results. The cotton crop of 1848 is known to equal 2,500,000 bales, which at 450 pounds per bale, is 25,000,000 lbs. In regard to the increase of manufactures in New England, since 1840, we are able to show that it has far exceeded *twenty per cent.*, the estimate of Gen. James, before quoted.

These statistics of cotton manufacture in New England, with any further quotations from the work in question, we must defer to a future number.

Mobile and Ohio Railroad.

Almost every town in this country on the sea coast, of any considerable importance, is now busily engaged in opening a railway communication with the country contiguous to, or dependent upon it.—The advantages that these roads confer upon such towns, and the trade and business of the country they penetrate, in most cases warrant their construction; though many of them possess little general importance. They are local, both in their object and influence. On the other hand, we have certain great routes indicated by the natural features of the country, and which strike the eye in looking over its map, as the great lines of communication between its most important points. One of these great lines is that connecting the great lakes with the Gulf of Mexico.

In a country like ours, producing the fruits of the tropics, as well as those of higher latitudes, where everything that enters into consumption is produced within our own limits, the natural course of trade is from north to south and south to north. Each section forwards its surplus products which are peculiar to, or most easily produced on its soil, to the other, and receives in return the appropriate products of the latter. The lines of communication, therefore, which run at right angles with the parallels of latitude, must be the great channels through which the products of these different latitudes shall be diffused and scattered over the whole.

The section of this great line between the Gulf and the Lakes, that this company proposes to construct, is from Mobile to the mouth of the Ohio.—This last point we have no doubt will be united with the Lakes, before it can be reached by this company. If, therefore, they can build their road to the mouth of the Ohio, this line will be complete.

If, therefore, a railway can compete with the present water communication between the Gulf and the Lakes, and we have no doubt it can successfully do this when the rivers are in the best state for navigation, to say nothing of the long period every year that they are closed by ice or unnavigable from droughts, over it must pass the greater part of the products of the section through which it runs, as well as of those connected with the road by branches, or by navigable waters, seeking a market, as well as the merchandise forwarded to consumers along the route.

These general statements alone are sufficient to show that a vast amount of business must pass over this line, ample we have no doubt in time to support many roads having the same object and the same general direction. But a faint idea can be gained of the amount of business this road would do, from the data furnished by the present amount of business of the section through which it proposes to pass, though we think that this would be adequate to support the road. Production which now languishes for want of suitable means of transportation, would be stimulated to an extraordinary degree; and a thousand sources of revenue would be developed which do not now enter the calculations of the income of the road. Our friends in Alabama have a clear field before them. They have every inducement to build the road, as offering a good investment of property. They can certainly by means of it draw an immense business to Mobile. It will develope, to an extraordinary degree, the resources of the country through which it passes.

Let those interested but display energy in its construction, united with a due regard to economy, and they cannot fail to come out right.

The following extracts from the last Annual Report of the Directors, held February 5, 1849, and and just received by us, show the progress already with the future prospects of the road. After giving a brief history of its progress up to the time of the meeting, it goes on to say—

As soon as practicable, after the appointment of the principal Engineer, Capt. John Childe, the necessary instruments and equipments for four field parties were purchased in New York, by a member of the Board, in connection with Capt. Childe, and forwarded one-half to Mobile, and the remainder to Cairo.

Capt. Childe then proceeded to Cairo, and from thence, having been joined by Mr. Troost, who had been appointed principal Assistant, continued overland, following the direction of the route to Mobile.

The line having been divided into four general sections, the Engineering corps for the first division was organized at Mobile, and the survey was commenced from the city boundary, in the month of November last, under the direction of Thomas S. O'Sullivan, First Assistant.

The second division under the charge of Lewis Troost, principal Assistant, was in the field soon after, and is now progressing through the prairie land of Mississippi.

The third and fourth parties, with F. S. Smith and H. S. McKean, First Assistants, respectively in charge, were also at work before the close of December, upon the northern end of the line.

The organization of these parties is complete and efficient, and the survey is progressing under the most favorable auspices. The plan of the survey embraces—in addition to a thorough instrumental examination of the route recommended by Mr. Troost—the survey of another route further west, which has been noticed by the Chief Engineer, as worthy of special consideration. This route diverges from the first in the valley of the Escatawba, and passing through Clark and Wayne into Jasper county Mississippi, continues north via Newton, Neshoba, Winston, Chickasaw counties, &c., into Tennessee, uniting again with the other route in Obion county, in that State.

Should it be found upon comparison between these two routes, that the cost of construction will not be materially affected by the choice of either—the final location of the road must then necessarily be greatly influenced in favor of that route, which will contribute the largest amount of subscriptions to the work.

Their remoteness from market, and the great difficulty and expense incurred in reaching the rivers, at the season when their crops are ready to go forward, under the present condition, would make this road invaluable to the counties on the western route, and will doubtless call forth every effort upon the part of those counties, to secure for themselves, the immense advantages which the construction of this great line of railway through their limits would ensure them.

Actuated by an earnest desire for the early progress of the work, and determined to push it forward with all possible vigor, the Board resolved to re-open the Books on the tenth day of January last, for the purpose of increasing the Mobile subscription to one million dollars; which, with such aid as could be safely counted upon from other sources, as a more advanced stage of the work, in the exchange of iron, labor, &c. for stock—it was believed would be ample to place the road under full operation to the Kemper county line.

The Chief Engineer was also instructed to furnish a detailed report, with estimates, &c. for the first division of one hundred miles, in advance of his general report, in order that the construction of the road might be commenced without unnecessary delay, after the requisite sum shall be subscribed.

The Books were opened accordingly, on the date before mentioned, since which, the new subscriptions received, up to this time, amount to 684 shares or 68,400 dollars. This, with 6,317 shares before subscribed, makes an aggregate subscription in Mobile of 700,100 dollars.

The magnitude of this undertaking, rendering it necessary that every interest should be called upon to contribute to its support; and the vast benefits to be derived by the city from its early accomplishment, in increased wealth and population, and new sources of public revenue, making it proper that her aid should be obtained as far as practicable, application was made to the corporate authorities for their co-operation, in such manner as might be deemed compatible with a due regard to her present financial condition.

This application has been entirely successful, and the city has, by resolution of her authorities, agreed to aid the company by a subscription of $300,000, in annual payments of 25,000 each, to be raised by a special tax upon the real estate of the city. By the terms of this resolution of the city authorities, this subscription to be carried into effect, requires the sanction of the property holders of the city, and the State Legislature, which will no doubt be readily granted.

Adding this sum, therefore, to the individual subscriptions, the aggregate Mobile subscriptions reach one million dollars, an amount sufficient, as has been before stated, to authorise the Board to commence the construction of the road, as soon as the estimates shall be received from the Chief Engineer.

In addition to the above subscription by the city of Mobile, subscriptions to the amount of over $100,000 have been made on the line of the route, which will undoubtedly be very largely increased.

An interesting paper from the Chief Engineer, which is appended to this report, explains in a clear

and practical manner, and the wonderful bearing which this work will have upon the value of property in its neighborhood—establishing conclusively, by facts drawn from the history of similar improvements elsewhere, that the lands between Mobile and Columbus, Kentucky, within twenty miles of the road, will be enhanced nearly twenty-five millions of dollars by its completion. To the planters of East Mississippi, adjacent to the road, this consideration appeals with unanswerable force. The indirect benefits to accrue from the opening of such a vast highway, will be shared in a greater degree by the planting interest, than by any other class and a comprehension of this fact should make them at once its most zealous advocates and supporters. Aside from the reduction of expenses in transporting their produce to market, and the increased demand which would arise for the various other commodities, for which they have at present no market, items of no small amount in the aggregate—there can be no doubt in the mind of any intelligent man that every dollar invested in the Mobile and Ohio road will yield a handsome return of profit to the stockholder. It should be remembered also that a large proportion of the cost of building a railroad, is expended among the people of the country thro' which it passes, and that much of the amount subscribed by the planters, would return to them again, in payment of supplies which they would be called upon to furnish, in the wages of labor, &c., &c., so that, althongh the amount expended would be large, yet the portion actually withdrawn from the community would be so small as not to be sensibly felt.

The grading will be commenced on that portion allotted to Mobile, as soon as the estimates are received from the Engineer—and the subscriptions already secured in this city, furnish a sufficient guarantee that there will be no failure here. About one hundred and twenty miles above Mobile, the Mississippi road from Brandon, which is rapidly advancing eastward, and will ere long be completed to the Alabama line—will intersect the Mobile and Ohio railroad. It is the opinion of the Board that when this connection is formed, a traffic will at once spring up, which will yield a profit upon the stock invested; and bring a large accession to the trade of Mobile, from the fertile country north and east of Jackson.

It is the desire of the Board, to begin the construction in Mississippi, also, as soon as the amount subscribed in that State shall be large enough to warrant such a course. It remains, therefore, with the friends of the road there, to decide how soon they shall participate in its benefits and advantages. For the purpose of co-operating with the local Commissioners, and with a view to prompt and concerted action upon this point, the Directors have appointed M. J. D. Baldwin, Esq., an Agent of the Company, and he will proceed in a few days to Mississippi, upon these and other duties connected with the road.

The fol lowing extracts are from the report of the Chief Engineer;

First—The country through the whole distance is of the secondary alluvial formations; exhibiting but few points of excavation, and these of the softest kinds of limestone and sandstone. Its surface is moderately undulating; but where the road will naturally cross the dividing ridges, does not exceed 250 to 300 feet above the nearest navigable waters of the Tennessee or Tombigby rivers—nor will the road be at the highest point over 650 to 700 feet above tide water at Mobile. Very little stone fit for masonry can be found; but materials for bricks, and timber in the greatest abundance, are every where convenient and suitable for railroad structures. In fact, the country under examination, topographically and geographically, is very favorable for the construction and use of a railway.

Second—In consequence of the slight elevation to be overcome and the otherwise general feasibility of the country for a railroad in the north and south direction, the gradients and curves can be made, by a careful location, of easy passage, so that the speed and effecti ve power of the engines may be greater upon your road, other things being equal, than upon any other line of equal extent in the United States. Going south, we hope to have no gradient to exceed 30 feet per mile, or north, over 40 feet; and the shortest curve not less than 1432 feet radius. With these natural facilities for construction, and the certainty of taking a fair portion of the immense traffic of the Mississippi and of its northern and eastern tributary valleys; also the whole of the local business of the extensive agricultural country through which the road will pass, you have no apology for building any other than a permanent, *first class* road—one as good as the best in the Northern States.

Third—the great benefits of this road to the country to be traversed by it, will be fully proved by enabling the agriculturist of Western Kentucky and Tennessee, and Northern Mississippi and Alabama, to crop their fields and place the products in the Mobile market twelve or twenty days earlier than can be done from the States north of the Ohio; and also, by furnishing the citizens of Mobile, and the planters of the whole cotton growing region of Eastern Mississippi and Northern Alabama, with their supplies of provisions, directly from the north, at all seasons of the year, and over an average distance of 200 to 400 miles instead of 1500 to 1800 miles, as is now the practice via the Ohio Mississippi and Tombigby rivers. * * * * * *

Sixth—The route now under survey is that mainly recommended by Mr. Troost, passing through portions of Ballard and Hickman counties, Kentucky; Obion, Gibson, Madison, McNairy and Hardin or Hardiman counties, Tennessee; Tishamingo, corner of Pontotoc Itawamba, Monroe, Lowndes, Noxubec, Kemder, Landerdale, Clarke, and Wayne counties, Mississippi; and Washington and Mobile counties, Alabama.

Another general route is worthy of particular consideration, and is as follows: Diverging from the first route in Obion county, Tennessee; thence thro' portions of Gibson, Haywood and Fayette counties, Tennessee; Marshall, Fayette, Chickasaw, Choctaw, Winston, Neshoba, Newton, Jasper, Clarke and Wayne counties, Mississippi; and Washington and Mobile counties, Alabama—joining the other route again in the valley of the Escatawba. These two routes, denominated the *Eastern* and *Western*, are the most favorable that the country presents—and the thorough examinations now under way, will enable me to report upon their comparative merits.

Among the resolutions adopted at the meeting are the following:

Resolved, That the construction of the Mobile and Ohio railroad, and of the Central railroad of Illinois, connected with the cities of Chicago and Mobile by an unbroken line of communication, except at the mouth of the Ohio, crossing the United States from north to south, and running through the heart of the country, at its narrowest point, is a reasonable and practicable measure, and one demanded, not only by the interests and necessities of these points of termini, but of the whole people along the entire line of the route; by the interests and necessities of the several States through which this line passes, and by the interests and necessities of the government of the United States.

Resolved, That this line, when completed, in connection with a line of steamships from the city of Mobile to the Isthmus of Tehuantepec, and when the crossing of this isthmus is made, in connection with a line of steamships from its Pacific side to California and Oregon, is the most practicable and direct channel of communication with all parts of the heart of the United States, on the east with her possessions on the Pacific, and is the one most demanded by the interests and necessities of the people and the government of the United States.

Resolved, That the superiority of this line of communication with the Pacific, over that proposed by Mr. Whitney, for the present is, the expedition with which its execution may be accomplished, and the greatly diminished cost of its successful and speedy establishment. And that its superiority over the route of the Isthmus of Darien is manifest from an inspection of the map, in its greatly diminished distance, and by reference to the resources of the Mississippi Valley, which it proposes to connect so immediately with the commerce of the Pacific.

Resolved, That it is the policy and duty of the government of the United States to negotiate with, and secure from the government of Mexico, at the earliest practicable period, the right of way across the Isthmus of Tehuantepec, and to grant a liberal aid for the construction of a railroad across that Isthmus, to establish without delay this channel of communication with her possessions on the Pacific.

Resolved, That it is only the duty and policy of the government of the United States, in order to facilitate the construction of the Mobile and Ohio railroad, and of the Central railroad of Illinois, to grant liberal appropriations of the public domain, to aid in completing more speadily these works; and that it is also the duty and policy of the several States thro' which these lines of road pass, looking at the immense benefits which they are to derive from them, to come liberally to the aid of these roads, with whatever means and in whatever manner, their respective Legislatures shall deem best, to secure their most speedy and successful accomplishment.

The following gentlemen were chosen Directors for the ensuing year:

Sidney Smith,	A. W. Gordon,
Francis B. Clark,	Charles LeBaron,
David Stodder,	John Bloodgood,
S. Griffitts Fisher,	J. M. Cunningham, Miss.
Geo. N. Stewart,	B. E. Gray, Ky.
Moses Waring,	W. H. Long, Tenn.
Jonathan Emanuel.	

Meeting of Stockholders of the Cape Fear and Deep River Navigation Co.

Pursuant to notice, the Stockholders of the Cape Fear and Deep River Navigation Co. met in Pittsboro' on the 14th of April. The meeting was organised by the appointment of Dr. J. Hill, of Brunswick county, as chairman, and M. Q. Waddell and Wm. Stedman, as secretaries. Dr. Hill, upon taking the chair, addressed the meeting at some length upon the subject of the contemplated work in his usual happy style. The meeting was then successively addressed by Dr. S. McClanahan, Captain Gilbert Potter, B. I. Howze, Col. McNeil, of Wilmington, and Col. Thompson (the engineer who made the survey of the river) in a manner worthy the cause, and they took their seats amid cheering from the numerous spectators present.

The books containing subscriptions for the capital stock of this company, being presented by the various commissioners appointed by the General Assembly for that purpose, at the clerk's table, it appeared that about $90,009 of the stock had been taken by individuals; and a motion was made by J. H. Haughton, that the representative of the State N. A. Stedman, be allowed the right of casting the State's vote in all questions before the meeting, and unanimously carried.

There being a sufficient number of votes, as prescribed by the act incorporating this company, the stockholders then proceeded to fix the salary of the President of the company at $1,000 per annnum, and combined the offices of Treasurer and Clerk of the company, with a salary of $1,000 per annum.

On motion, it was Resolved, That the Chairman appoint a Committee of three persons to audit the accounts of the Treasurer, and make annual reports to the general meeting of the stockholders: and that the bond of the Treasurer be in the sum of $50,000, and be approved by the President and Directors of the company.

An election was then held for President and Directors of the company, and resulted in the choice of Dr. Spencer McClanahan, of Chatham, as President, and the following persons as Directors, viz: J. H. Haughton, Peter Evans and Thomas Hill. Mr. N. A. Stedman was then called upon as the State Proxy, to appoint two Directors on behalf of the State, and he thereupon appointed Isaac Clegg, of Chatham, and Col. A. S. McNeil, of Cumberland.

After this appointment doubts were entertained as to the authority of the State to make such appointments.

Whereupon, on motion of B. I. Howze, it was unanimously Resolved, That the individual Stockholders in this meeting entirely concur in said appointment, and that they do hereby ratify and adopt the appointment of Isaac Clegg and A. S. McNeil as Directors of this company.

On motion, it was Resolved, That another general meeting of the Stockholders of this company be held at Pittsboro' on the Second Thursday in June next, and that hereafter the annual meetings of the company shall be on the second Thursday in June.

Committee on accounts, John J. Jackson, William T. Horne, and Nathan A. Stedman.

On motion of John H. Haughton, it was Resolv-

ed, That it is the sense of this meeting that the President and Directors commence operations as soon as practicable

On motion, the thanks of the meeting were tendered to the Chairman and Secretaries, for the manner in which they had discharged their duties. After which the meeting adjourned till the second Thursday in June next.

On motion, it was Resolved, That the papers in Pittsboro' and Wilmington be requested to publish the proceedings of this meeting; and that all other papers in the State, favorable to the cause, be requested to copy the same.

FRED. J. HILL, *Chairman.*

M. Q. WADDELL, WM. STEDMAN, } *Secretaries.*

In the afternoon, the President and Directors of the company held a meeting and elected Benj. I. Howze, Treasurer, and Wm. B. Thompson, Engineer, of the work.—*Chronicle.*

Railway Economy.

Some very useful experiments with a new passenger carriage axle box have just been completed upon the London and North Western railway, under the superintendence of the company's officers. The objection to the ordinary axle boxes of railway carriages, is, that while the grease finds an easy escape from them, and is wasted to a very expensive extent, the dust, of which an abundance is generally raised by the speed of the train, insinuates itself between the axles and the journals, and acts as a grinding medium upon the surfaces of both metals. The consiquence is a very considerable wear of the materials, and frequent "hot axles." To this objection must be added the wages of the men employed at the stations to replenish such of the axle boxes as have lost an undue quantity of grease. The men are allowed very little time to do this, and in their haste they seldom stop to examine whether, in scraping off and putting into the axle box the grease that may have been pressed over the side, they gather up with it a quantity of the fine pointed grit which is usually found adhering to the outside of axle boxes. It is very seldom that a passenger train runs fifty miles without some of the axle boxes requiring a fresh supply of grease. The new axle boxes, which are the invention of one of the officers of the engineering department of the London and North Western company, Mr. Normanville, prevent the admission of grit, by the use of a screw opening, through which the greese is supplied, and the waste of the latter, as well as the insinuation of dust between the axles and the journals, are avoided by the application of a valve acted upon by vulcanised India-rubber springs, fitted to the axle at the hitherto open end of the box. The experiments were made with two four wheeled first class carriages, Nos. 106 and 169, taken indiscriminately from the rolling stock of carriages fitted with this description of box, of which there are a considerable number at work.—These carriages were worked in the express and ordtnary trains between London, Liverpool and Manchester. One of them ran upwards of 4,000 miles and the other upwards of 3,800 miles, without the axle boxes having had any additional grease supplied, and without the axles having once got hot.—At the conclusion of the experiment, the axles and journals were inspected by the officers, and found to be in perfect order. It is stated that the application of these axle boxes to to the company's stock, will effect a saving of several thousand pounds per annum.—*Morning Chronicle.*

Susquehanna Coal Trade.

The extensive coal deposits which are known as the *Southern Coal Field* of Pennsylvania, and which are nearer to the water than the other are now likely to be steadily and surely developed. The Lykens Valley company have their railroad and the Wiconisco Canal in complete order for operations; the Dauphin and Susquehanna railroad is in progress towards completion; and it will be seen from the annexed article that a company for making a third railway has just been organised. The Tide Water Canal is the outlet for these important mineral treasures, and must derive from them annually increasing resources:

From the Philadelphia North American.

NEW SUPPLIES OF COAL.

We learn that the extensive coal field west of the Pine Grove district, is shortly to be opened. A company, under the name of the "The Pequa railroad and Improvement company," was incorporated by the last Legislature, for the purpose of opening these coal fields and making a railroad from them.

This company has just organized, and elected as President our townsman, Mr. Lea, the senior member of the firm of Lea & Blanchard, who for many years have been large owners of the lands embracing the entire southern coal field, from the river Susquehanna east to the Schuylkill county line, a distance of twenty-six miles.

Explorations of the lands of the Pequa company have developed almost inexhaustible quantities of anthracite coal of the best quality; fifteen distinct workable veins have been opened, eleven of them averaging seven feet, and the whole, 92 feet thickness of pure coal; in addition, large veins of carbonates and oxides of iron are known to exist. The position of the coal, which is accessible in several gaps, will enable the company to mine large quantities at a very small cost.

The exit to a market will be over a railroad of about twenty miles, (sixteen of which are now making by the Dauphin and Susquehanna Coal company to carry their semi-bituminous coal to the town of Dauphin, eight miles above Harrisburg) on a descending grade, which will land the coal in boats on the State Canal ready for transport to the whole valley of the Susquehanna and Chesapeake Bay; or by a connection with the Central railroad at a point where it crosses the Susquehanna, three miles below Dauphin, this coal will be in transit from the mines to all points on the railroads that pass out from Harrisburg.

These coal fields are the nearest to tide water of any in the valley of the Susquehanna; and now that capital has been obtained and the companies organised under management that should inspire confidence, we may look for activity and business in the valley of the Susquehanna that will add to the resources of the State, hold out further inducements to our citizens to rely upon their home wealth, give aid to railroad and other improvements, and furnish employment to our own people.

Liability of Railrord Companies for the Carelessness of their Servants.

The following extract copied from the Hampshire Gazette, of the trial of an action for damages for personal injury, sustained through the carelessness of the engineers employed on the Connecticut River railroad, possesses great interest, as defining the liabilities of railroad companies as public carriers, and the right of passengers to reparation in case of injury:

Heavy Damages.—The Connecticut River railroad company were mulcted in heavy damages, by a jury of the Supreme Court, at Springfield, last week, for injury sustained by Ezra S. Corning, of Chicopee Falls, in a collision on the railroad, on the 11th February, 1848. From the report of the case in the Springfield Republican, we gather the following facts:

Corning was a passenger on the day mentioned, in the train from Chicopee Falls to Springfield. An engineer, employed on the road, by the name of Johnston, very carelessly run an engine out from Springfield for trial, and on a curve, about a mile from Springfield, a collision took place between the train and the engine, the latter running at the rate of about fifteen miles an hour, and the train very slow. The plaintiff was thrown upon the floor of the car, and injured on the side of his head, on his hip, and in his spine. He did not appear to be seriously hurt at the time, for he went on to Springfield and transacted his business there, attended to his own business at home the next day, the following day went to church, and a few weeks after took a trip to Greenfield per railroad, and went from Northampton to Chicopee Falls, by way of Amherst, in bad travelling, in a private conveyance. During the whole time, however, he suffered more or less inconvenience from the injuries received from the accident. Soon after, his sufferings increased, his symptoms grew more and more alarming, and for some time he has been wholly incapacitated to attend to ordinary business.

A number of medical gentlemen were produced on both sides as witnesses, among whom were Dr. Woodward of Northampton, and Dr. Hayward of Boston. They seemed to agree substantially, that the plantiff's present condition was the result of the collision on the railroad, though they generally were of opinion that the injuries, as they first manifested themselves, seemed to be hardly adequate to produce the consequences that followed. They also substantially agreed that it was quite doubtful whether the plaintiff ever recovered. He might be restored to health and he might not. Medical aid and treatment could do little for him. Rest, quiet, and change of air and scene would help him more than any thing else.

The Court (Judge Metcalf,) instructed the jury that they were to view the plaintiff's constitution as it was on the time the suit was commenced, which was on the 21st of August last, and not as it is at the present time. They were to award such damages as in their opinion, would compensate, him, so far as dollars and cents could, for the injuries received. There was no price current for pain and suffering, but they must look at the case as men of sense, and do what was in their power towards recompensing the plaintiff. They were not to pay any attention to the fact that he might be a poor man, and the defendants a rich corporation, but consider only what amount of damage had been done, and what amount of money would pay for it. The golden rule had nothing to do with the case, for if juries were to *do* as they would be *done by*, it would be impossible ever to get a man hung.

The jury, after an absence of two hours, returned a verdict for the plaintiff, assessing the damage at Nine Thousand and Forty-five Dollars.

Cleveland, Columbus and Cincinnati Railroad.

Messrs. Witt & Harbeck, who have the contract for the construction of this road, long since sublet the entire distance between Cleveland and Columbus, and there are now at work on that portion abut 1000 men, and more are being added from day to day.—The work is being prosecuted with great vigor, and will be ready for the superstructure, as per contract, by June 1st, 1850.

The precise distance between Cleveland and Columbus by the survey adopted, is 134¼ miles.

As has already been announced, Mr. Kelly, the President of the road, has negotiated for 7,000 tons of iron, sufficient to lay the track of seventy miles, more than half of the road.

One feature in this great work is that every thing connected with it is done in the best possible manner. The abutment for the bridge across the canal, at the foot of Vineyard street, is a model piece of work, and a fair specimen of the balance of the road.

Mr Kelly who has been absent for several weeks, is expected in this city in a few days, when some interesting facts may be presented.—*Clev'd. Herald.*

Maryland.

It gives us pleasure to say that last week the Baltimore and Susquehanna railroad company remitted to the Treasurer of Maryland the sum of $15,000. This, together with what has been previously remitted, makes an aggregate of $35,000 paid into the State Treasury since the opening of the present year, 1849. The road is managed with energy and efficacy, and its revenues are steadily on the increase. The completion of the new line from York to Harrisburg will give to its business new trade and more rapidly growing profits.—*Baltimore Am.*

Through to Chicago Direct.

The train of cars that left this city Saturday morning, had about ninety passengers that came up on the steamer Baltic, one of the boats of the south shore line to this city, who were going direct thro' to Chicago, by this route. This is the first load of the season and the first passenger train that will arrive at Buffalo from Detroit. Hereafter the cars will leave at 7 o'clock and the passengers will be in Chicago the next morning. After the first of May a second train will be put on.—*Free Press.*

The Detroit Advertiser has the following remarkable paragradh:

Boston and St. Louis Five Days Apart.—The completion of the Michigan Central railroad from Detroit to New Buffalo, will give the merchants of St.

Louis an opportunity to make the trip to New York or Boston in five days, for the sum of twenty-eight dollars, without hardship, through a most interesting and attractive region of country, and with the most pleasant variety of conveyance.

AMERICAN RAILROAD JOURNAL.

Saturday, May 12, 1849.

THE RAILROAD JOURNAL.

The attention of the readers of the Journal is invited to our prospectus in another column. The engagement of Mr. Hodge for the particular department of mining and metallurgy, and Gen. James for the department of manufactures and the mechanic arts, will enable the Editor to devote his labors to the railway interest and general business of the country. Arrangements to give information as to the most improved forms of mechanical invention in connection with the Patent Office, in addition to our other engagements, will enable us to give to the business man and industrial classes of our country a work of *practical* value, such as has not before been attempted.

We therefore request our exchanges who feel an interest in the success of the Journal, and such papers as may receive this number of it, and desire an exchange with it, to copy our prospectus and send us their paper.

Railway Management.--Deterioration of Way.

In this country, most of our railroads have not been built a sufficient length of time to show from actual experience the annual amount the deterioration of way bears to the cost of the road. In England, where roads have been longer in use, and do a much larger business than roads with us, and consequently furnish more data by which to estimate this annual wear, one of the great causes of distrust of railway property is this deterioration of way.—Notwithstanding the perfect manner in which their roads are built, and their freedom from frosts which so much disturbs our tracks in the northern States, their roads are fast giving away under their immense engines, weighing from 25 to 30 tons, and running at the rate of 40 or 50 miles per hour. At every inequality or curve on the road, the wheels strike the side of the rail with a tremendous concussion, and in a short time the chairs become loosened and draw the spikes from the sleepers; the evil increasing just in proportion as the chair is moved out of its place. It is a well known fact that a few blows with a sledge upon a bar of cold iron changes its texture, and destroys to a great degree it strength. The same change to a certain extent takes place in the rail from the long continued passage of a heavy engine over it,and particularly at those points where, from inequality of surface, the rail receives a concussion from the wheel. This deterioration of way is undoubtedly much greater in England than in this country, from the greater cheapness of the wood worku sed in our roads, and from the less speed of our trains. Still we are convinced that we have not estimated this wear of the track so high as it really is. In their anxiety to stand well before the public and the stockholders, directors on many of our roads, seem to think that all surplus earnings over the cost of running the road, is a proper subject for dividend. There can be no greater mistake. There should always be set apart, before making a dividend, a reserve fund equal to the annual wear of the road, though the amount reserved may not be equired to be laid out for years. It is undoubtedly fact that the annual wear of the rail on most of ur roads using light rails and heavy engines, is equal to six per cent. of its cost, if not more.—Where therefore the iron for a road costs $6,000 per mile, $360 per mile per year should be set apart to make good this waste. So with the wood work of a road. Here the deterioration is vastly greater, and consequently requires a proportionate reserve fund. All these items of wear and decay should be provided for before any dividend is declared, and this deterioration of way, as fast as it can be ascertained from experience in running roads, should be an item to be provided for, as much as the expenses of running the road; and until this can be ascertained, a liberal sum should always be reserved for this contingency. The usefulness, nay, the necessity of roads is admitted by all. That many of them offer safe and lucrative opportunities for investment of money, we have not a doubt. But in estimating the value of the stock in a road, deterioration of way, which is one of the main things to be considered, is little thought of. There is one fortunate circumstance, however, in almost all our roads. Where their net earnings, without providing for this loss, will allow at the present time a dividend, the annual increase of their revenues bid fair to furnish a sufficient fund for this purpose, when it shall be needed.

In confirmation of the above views we give the following article from the Practical Mechanics' Journal, as showing the attention that this subject is receiving in England.

Railway Economics.--Improvements in Permanent Way.

In our late remarks upon Mr. Adams' locomotive carriage for branch traffic, we took occasion to remark upon some of the leading points bearing upon the present inordinate amount of deterioration of the permanent way as effected by the introduction of the carriage-engine system. Whilst this system is to be looked upon as one great means of relieving lines of the existing style of construction from the overwhelming expenses of repairs, there is yet another to which we may look forward as promising to be fundamentally effectual in securing lines, hereafter to be formed or re-modelled, from excessive wear, even under the heavy travelling machinery of the present day. It is in the way itself that the proposed advantages are to be secured, and that by a judicious modification of the continuous-bearing system, so long scouted by engineers.

The question assumes a very serious aspect, when it is closely examined; for how can it be expected that lines, originally laid with 50, 60 or 70 lb. rails, for carrying engines of 10 or 14 tons, can be made to withstand the shocks of the modern 25 ton engine? The item of "maintenance of way" has become too formidable to be longer overlooked; in fact, something must be done to reduce its amount, and that at once.

The mere friction of the axles of carriages, or the power necessary to move them on a dead level, does not exceed 4 lbs. per ton; but practically the total resistance is found to range from 8 to 25, or even 30 lbs. per ton. Thus we have a loss of from 4 to 26 lbs. to be laid to the charge of the rubbing between the wheels and the rails, added to the momentum annnihilated by the bad joints of the rails, their deflection, and general constructive defects. Again, we have to allow for the great speed at which these overpoweringly heavy engines are now travelling; for when the line once receives an injury, the evil constantly increases, from the leaping of the wheels from one inequality to another.

In all lines with transverse bearings, great loss is occasioned by the unequal strengths of the different portions. Practical test has shown that the deflection of the rail with a given weight is four times as great at the intermediate bearings as at the joints, and hence the jumping motion is vastly aggravated; for no vehicle can possibly pass smoothly over a line whose elasticity is constantly varying. A comparatively weak rail, with well constructed joints, is far preferable to a heavy rail with badly adjusted or insecure joints; thus the light rail of the broad gauge, with a continuous bearing of timber, is, and must ever be, more mechanically perfect than the chair and transverse sleeper construction of the narrow gauge.

An insufficient substructure has likewise had a good deal to do with the deterioration of way. The transverse sleepers are frequently too sparingly applied, and too small in size, so that they are liable to sink considerably in the ballast of the way, and the costly operation of "packing" becomes necessary. When we add to this list of objectionable features the decay of timber sleepers, for which no good preventative has yet been adopted, our summary is perhaps complete. In the Eastern Counties line, for example, the capital invested in sleepers alone, is, we believe, very nearly £200,000; and from a late examination of the line, we are clearly of opinion, that the entire quantity will require renewal within five years, at an expense, calculating each sleeper to cost 5s. when fixed, of some £250,000. That this decay is not overrated, is proved from the fact of entire and radical decay frequently occurring in three years from the time of laying, as in chalk formations, or where the wood is subjected to extreme alterations of wet and dry. Mr. Robert Stephenson was fully alive to the magnitude of the apprehended evils when he stated in the House of Commons, "that if the increased weights and the increased speeds are to be maintained, it will be necessary to relay the lines."

We before remarked, that there are two ways of mitigating or removing the difficulties in question, the adoption of lighter engines, and a relay of the line. Arguing on the broad principle, a large locomotive is more profitable in its action than a small one, provided there is full work in each case; therefore it would appear that the former must answer better, in a commercial point of view, provided its weight and speed are not beyond what Mr. Stephenson has termed the "economic endurance" of the line. Knowing, however, that large engines cannot always be supplied with work to the full extent of their power, the proposition is modified, and light engines may sometimes answer for the traffic, whilst their deteriorating influence on the way is manifestly nothing to compare with that of the former class. As a point of commercial calculation, the speed of an engine may be increased in direct proportion to its lightness, heavy engines being kept exclusively for the conveyance of luggage and other slow trains The arguments in favor of the light engines have been already fully elucidated in this Journal; we shall, therefore, at once proceed to the consideration of the improvement of the permanent way.

In lines where chairs are used, the latter are required to be long and heavy, to afford a resisting power against the leverage of the rails, which tends to tear them up from the sleeper when side-blows are given from the travelling wheels. No arrangement of the chairs, short of an excessive increase in size, can, however, remove the objectionable wear between the rail and its bed in the chair. To remedy this evil we must do away with chairs altogether.—*Glasgow Practical Mechanics' Journal.*

As a substitute for the chair, the writer of the above proposes that each longitudinal sleeper shall consist of two pieces of timber seven inches square, with a groove cut partly out of each each for the reception of what he terms the main central rib of the rail, which is a projection from the underside of the rail, in the shape of an inverted ⊥; the two pieces of timber being secured by transverse bolts passing through these ribs of the rail, which is thus tightly bound between the timbers. Thus, while the rail has the best possible bearing upon the timbers, these firmly hold the main rib which is fitted into the groove. To prevent looseness, so common with iron spikes and chairs, the whole surface of the rail is to be embedded in tar, so that the timber and metal portion would be hermetically sealed from the rust.

☞ The fast train which now runs through between Albany and Buffalo, traverses the distance of 323 miles in sixteen hours—a little over twenty miles per hour including all stoppages.

Cost of Blast Furnaces.

The question is often asked, how it is possible a blast furnace should be so costly an affair—one for anthracite often exceeding $50,000, and one for charcoal $30,000. A great deal of the work about one of these structures is hidden from view; and they all involve, moreover, many accessory items, which do not present themselves at the first glance. Small charcoal furnaces are built and put in operation, with all their machinery, at an expense sometimes not exceeding $10,000 or $12,000; but this must be on water power furnished at little cost for dam, and race-way, and with the strictest economy in the amount and quality of the machinery for the blast, and in the general character of all the work. Such furnaces can hardly be depended upon for a long time, still from the contingencies of the business it is often the most judicious plan to construct such.

The following estimate comprises the ordinary essential items connected with building a furnace for charcoal, and about the range of their cost.

Furnace—stack and foundation....	$1,000 to	$3,000
Lining.....	300 "	600
Hearth stones.....	200 "	350
Castings (including 20,000 lbs. hot air pipes) at 4 cts. per lb.....	800 "	1,500
Top and casting house.....	200 "	1,500
Blowing machinery.....	600 "	3,000
50 horse-power steam engines (sufficient for two furnaces).....	5,000 "	5,000
Coal sheds.....	500 "	1,000
Blacksmith's shop and tools.....	300 "	400
Workmen's houses.....	1,500 "	3,000
Agent's house.....	1,500 "	2,000
Store.....	700 "	1,000
Out houses, stables, etc.....	800 "	1,500
	$13,400 to	23,850

If kilns are added for charring wood, their cost will be from $700 to $1000 each. H.

American Cast Steel.

It is generally known that the important article of cast steel—for the supplies of which we are dependent on foreign countries, principally England—is now produced in this country from American iron, and that of a quality much superior to that imported. For this important advancement towards a state of entire independence of other countries, we are indebted to the energy and enterprise of the *Adirondac Steel Manufacturing Company*, and to the ingenuity and science of their superintendent, Mr. Joseph Dixon. Their manufactory is located at Jersey City, N. J., and the iron which they use for making the steel is manufactured by themselves, at their works, situate on the western borders of the county of Essex, in the state of New York. The ore from which it is made is there found in inexhaustible quantity, and being in the heart of an extensive forest, which will furnish charcoal for a century, their works might be so extended as to meet the entire demand of the Union. They are now prepared, we understand, to furnish steel of all sizes and forms, and at prices below that of the best qualities of imported steel.—*Phil. North Am.*

☞ At a meeting of the stockholders of the Phenix Mining and Manufacturing Company, held at the office of the company, in Wall street to-day, the following gentlemen were elected Directors of the company:—Samuel Jaudon, Wm. S. Wetmore, Elisha Peck, David Banks, Jonn C. Zimmerman, John C. Stemmeler, Benjamin Nathan, Myndert Van Schaick, Benj. T. Reed, Boston.

Cleveland and Pittsburgh Railroad.

The city of Cleveland has already subscribed over $130,000 for the construction of this road. This will put under contract 57 miles of the road from Cleveland to Tea Garden, near Mount Union, which will be ready for the iron in 1850. Eighteen miles beyond this is under contract, making in all 75 miles, leaving but 23 miles to be provided for.

Practical Geology and Metallurgy.

JAMES T. HODGE WILL EXAMINE AND report upon Mines and Ores; construct and conduct Blast-furnaces; and give important information as to the best localities for their establishment. To parties desirous of building the nearest furnaces to New York city he can furnish the control of ores, which will warrant the entirprise.

Office at No. 1 New St., corner of Wall. When absent from the city, inquiry may be made at the office of this Journal, 54 Wall St.

American Railroad Journal.

Steam Navigation, Commerce, Mining, Manufactures.

ESTABLISHED IN 1831.
At Five Dollars Per Annum in Advance.

THE AMERICAN RAILROAD JOURNAL is published at 54 *Wall St., New York*, under charge of HENRY V. POOR, ESQ., Editor. Several gentlemen are engaged as regular contributors, known as leading Railroad men in the country.

The Railroad Journal was commenced before any similar publication was attempted in this country, or elsewhere, devoted to the Railway interest; and it has recorded the progress of the Railway System from its humble beginnings, and contributed to carry it forward till the whole civilized world has become more dependent upon it than upon any other agency whatever.

The Locomotive Railway System has now become the great necessity of man—the great instrument of civilization and progress—the great idea of modern times. It has already done more to relieve the burdens of labor—to minister to man's wants and necessities, and to elevate him in the scale of being, than any other agency that has ever been exerted.

The Locomotive Steam Engine, we regard as the greatest achievement of man—the most extraordinary instrument for good the world has yet reached. It traverses the earth with a speed outstripping the swiftest bird upon the wing, carrying—not thought or language alone, but—man, living, breathing, sensitive man—instinct with new life—new energy—new powers, conscious almost of new faculties and a new creation. Without danger, and without fatigue, it enables man to transfer himself to distant regions of space, and participate in the enjoyments, the physical gratifications, and the various pleasures of social existence, in a manner heretofore unknown. It gives to every community the productions, and ideas of every otrhe—disclosing or creating new sources of enjoyment, and multiplying, to an infinite degree, every susceptibility to pleasurable emotion.

It will not have achieved its highest work till it has harmonised political differences, and elevated all men to the highest social condition of which they are capable. By making distant places one neighborhood, it practically prolongs our being, not to one, but to a fourfold degree, enhancing, in the same ratio, all the joys of existence.

Whoever, therefore, labors in this field, has more than the ordinary rewards for exertion. He is working for humanity—for progress—for the highest good of his race. Profoundly impressed with these views, we intend, in accordance with their spirit to conduct the Journal.

The history, the influence, and the improvements of the railway, with statistics, showing its extent, cost and productiveness, as well as a careful inquiry into its management; scientific discoveries, the mechanic arts, steam navigation, commerce and mining—especially in connection with locomotion and the progress of industry—are embraced in the range of our labors.

Under the mining head, the readers of the Journal will find a series of articles on the *Iron Ores and Iron Manufacture* of the United States, from the pen of J. T. HODGE, Esq., who is an Assistant Editor of the Journal, for the department of Mining and Metallurgy.

Mr. Hodge has for many years been engaged in the preparation of a work on the Iron Ores and Iron Manufactures of the United States, embracing descriptions in detail of the different localities of ore, the expense of working different mines, the structure and location of the several blast furnaces and the results of their working. This work is to be published in a condensed form in the Journal, in a series of weekly papers, conveniently arranged under appropriate heads, with statistical tables of different districts, and such plans and drawings as may be found desirable.

Besides this work on iron, Mr. Hodge is to furnish to the Journal detailed accounts of the *Copper and Lead Mines of the United States*, which have been carefmlly examined by him, with information on mining subjects generally.

These works will be found indispensable to all parties engaged in mining and the iron manufacture.—This is the first attempt yet made to give, in an elaborate and practical form, a scientific work on the iron ores, the iron manufacture, and mining resources of the whole country.

GEN. C. T. JAMES, of Providence, has also been engaged as an Assistant Editor of the Journal. He will furnish to the Journal full accounts of the progress of mechanical invention, and of the condition of the manufacturing interests of the country. His reputation as a practical mechanic, a successful manufacturer and an able writer, are already well known to the public. He will also furnish valuable information touching other branches of industry and of business.

Great Britain owes her present commercial and political importance more to the mechanical invention of her people than to any other cause.

American skill, industry and enterprise, are giving us a distinguished rank in the community of nations. To these interests, and to the Railway, as the most valuable of all, this Journal will be earnestly devoted.

J. H. SCHULTZ & CO.

ENGINEERS.

Arrowsmith, A. T.,
Buckfield Branch Railroad, Buckfield, Me.

Berrien, John M.,
Michigan Central Railroad, Marshall, Mich.

Clement, Wm. H.,
Little Miami Railroad, Cincinnati, Ohio.

Fisk, Charles B.,
Cumberland and Ohio Canal, Washington, D. C.

Felton, S. M.,
Fitchburgh Railroad, Boston, Mass.

Ford, James K.,
New York.

Gzowski, Mr.,
St. Lawrence & Atlantic Railroad, Montreal, Canada.

Gilbert, Wm. B.,
Rutland and Burlington Railroad, Rutland, Vt.

Grant, James H.,
Nashville and Chattanooga R. R., Nashville, Tenn.

Holcomb, F. P.
Southwestern Railroad, Macon, Ga.

Higgins, B.
Mansfield and Sandusky Railroad, Sandusky City, O.

Johnson, Edwin F.
New York and Boston Railroad, Middletown Ct.

Latrobe, B. H.,
Baltimore and Ohio Railroad, Baltimore, Md.

Morton, A. C.,
Atlantic and St. Lawrence Railroad, Portland, Me.

McRae, John,
South Carolina Railroad, Charleston, S. C.

Nott, Samuel,
Lawrence and Manchester Railroad, Boston,

Reynolds, L. O.,
Central Railroad, Savannah, Ga.

Roberts, Solomon W.,
Ohio and Pennsylvania Railroad, Pittsburgh, Pa.

Robinson, James P.,
Androscggin & Kennebec Railroad, Waterville, Me.

Schlatter, Charles L.,
Northern Railroad (Ogdensburg), Malone, N. Y.

Stark, George.,
Bost., Con. and Mont. R. R., Meredith Bridge, N. H.

Trimble, Isaac R.,
Philad., Wil. & Baltimore Railroad, Wilmington, Del.

Tinkham, A. W.,
United States Fort, Bucksport, Me.

Thomson, J. Edgar.,
Pennsylvania (Central) Railroad, Philadelphia.

Whipple, S.,
Civil Engineer and Bridge Builder, Utica, N. Y.

Williams, E. P.,
Auburn and Schenectady Railroad, Auburn, N. Y.

Williams, Charles H.,
Milwaukie, Wisconsin.

BUSINESS CARDS.

James Laurie, *Civil Engineer,*
No. 23 Railroad Exchange, Boston, Mass.
Railroad Routes explored and surveyed. Estimates, Plans and Specifications furnished for Dams, Bridges, Wharves, and all Engineering Structures.
October 14, 1848. 6m*

James Herron, *Civil Engineer,*
OF THE UNITED STATES NAVY YARD,
PENSACOLA, FLORIDA.,
PATENTEE OF THE
HERRON RAILWAY TRACK.
Models of this Track, on the most improved plans, may be seen at the Engineer's office of the New York and Erie Railroad.

IRON.

Railroad Iron.

THE TRENTON IRON COMPANY ARE NOW turning out one thousand tons of rails per month, at their works at Trenton, N. J. They are prepared to enter into contract to furnish rails of any pattern, and of the very best quality, made exclusively from the famous Andover iron. The position of the works on the Delaware river, the Delaware and Raritan canal, and the Camden and Amboy railroad, enables them to ship rails at all seasons of the year. Apply to
COOPER & HEWITT, *Agents.*
17 Burling Slip, New York.
October 30, 1848.

Railroad Iron.

THE NEW JERSEY IRON CO'S WORKS AT Boonton, are now in full operation, and can execute orders for Railroad Bars of any required pattern, equal in quality to any made in this country. Apply to DUDLEY B. FULLER, *Agent,*
139 Greenwich street.
New York, October 25, 1848.

Railroad Iron.

THE UNDERSIGNED ARE PREPARED TO contract for the delivery of English Railroad Iron of favorite brands, during the Spring. They also receive orders for the importation of Pig, Bar, Sheet, etc. Iron. THOMAS B. SANDS & CO.,
22 South William street,
February 3, 1849. New York.

English Railroad Iron.

3000 Tons T pattern Rails in store, and to arrive this Spring—58 and 60 lbs per yard; of an approved pattern, best English make, each bar being stamped with the manufacturers's name, and inspected before shipment at the works in Wales. For sale by DAVIS, BROOKS & CO.,
68 Broad srteet.
March 18, 1849 2m.11

Railroad Iron.

THE MOUNT SAVAGE IRON WORKS, Alleghany county, Maryland, having recently passed into the hands of new proprietors, are now prepared, with increased facilities, to execute orders for any of the various patterns of Railroad Iron. Communications addressed to either of the subscribers will have prompt attention. J. F. WINSLOW, *President*
Troy, N.Y.
ERASTUS CORNING, Albany.
WARREN DELANO, Jr., N.Y.
JOHN M. FORBES, Boston.
ENOCH PRATT, Baltimore, Md.
November 6, 1848.

Railroad Iron, Pig Iron, &c.

600 Tons of T Rail 60 lbs. per yard.
25 Tons of 2½ by ½ Flat Bars.
25 Tons of 2½ by 9-16 Flat Bars.
100 Tons No. 1 Gartsherrie.
100 Tons Welsh Forge Pigs.
For Sale by A. & G. RALSTON & CO.
No. 4 So. Front St., *Philadelphia.*

Railroad Iron.

THE SUBSCRIBERS ARE PREPARED TO take orders for Railroad Iron to be made at their Phœnix Iron Works, situated on the Schuylkill River, near this city, and at their Safe Harbor Iron Works, situated in Lancaster County, on the Susquehannah river; which two establishments are now turning out upwards of 1800 tons of finished rails per month.
Companies desirous of contracting will be promptly supplied with rails of any required pattern, and of the very best quality.
REEVES, BUCK & CO.,
45 North Water St., Philadelphia.
March 15, 1849.

Railroad Iron.

THE Undersigned offer for sale 3000 Tons Railroad Iron at a fixed price, to be made of any required ordinary section, and of approved stamp.
They are generally prepared to contract for the delivery of Railroad Iron, Pig, Bar and Sheet Iron—or to take orders for the same—all of favorite brands, and on the usual terms. ILLIUS & MAKIN.
41 Broad street.
March 29, 1849. 3m.13

Pig and Bloom Iron.

THE Subscribers are Agents for the sale of numerous brands of Charcoal and Anthracite Pig Iron, suitable for Machinery, Railroad Wheels, Chains, Hollowware, etc. Also several brands of the best Puddling Iron, Juniata Blooms suitable for Wire, Boiler Plate, Axe Iron, Shovels, etc. The attention of those engaged in the manufacture of Iron is solicited by
A. WRIGHT & NEPHEW,
Vine Street Wharf, Philadelphia.

Railroad Iron.

RAILROAD IRON & LOCOMOTIVE TIRES imported to order, and constantly on hand, by
A. & G. RALSTON,
4 South Front St., Philadelphia.

RAILROAD WHEELS.

CHILLED RAILROAD WHEELS.—THE UNdersigned are now prepared to manufacture their Improved Corrugated Car Wheels, or Wheels with any form of spokes or discs, by a new process which prevents all strain on the metal, such as is produced in all other chilled wheels, by the manner of casting and cooling. By this new method of manufacture, the hubs of all kinds of wheels may be made whole—that is, without dividing them into sections—thus rendering the expense of banding unnecessary; and the wheels subjected to this process will be much stronger than those of the same size and weight, when made in the ordinary way.
A. WHITNEY & SON,
Willow St., below 13th,
Philadelphia, Pa.

CHILLED RAILROAD WHEELS.—THE UNdersigned, the *Original Inventor* of the *Plate Wheel* with solid hub, is prepared to execute all orders for the same, promptly and faithfully, and solicits a share of the patronage for those kind of wheels which are now so much preferred, and which he originally produced after a large expenditure of time and money.
A. TIERS,
Point Pleasant Foundry.
He also offers to furnish Rolling Mill Castings, and other Mill Gearing, with promptness, having, he believes, the largest stock of such patterns to be found in the country. A. T.
Kensington, Philadelphia Co.,
March 12, 1848.

Wanted Immediately.

8000 Tons of Inverted T Rail wanted, of about 60 lbs. to the yard, for laying 80 miles of road, by the Columbus and Lake Erie Railroad Company, and Mansfield and Sandusky Railroad Company, 60 miles of which is new road, and to re-lay 20 miles on the last mentioned road.
Proposals will be received until May 15, addressed (under seal) to me, at this place.
Proposals are invited for cash on delivery, and also for 7 per cent. bonds, payable in New York or Boston. Delivery may be made at Oswego, Albany, or New York, or at Portsmouth, on the Ohio river, Montreal, Canada, or at Sandusky city. American Iron would be prefered, except *good* English. Parties proposing, will please name the place preferred for delivery. Delivery to commence as early as June 1st, and complete as early as October 1st, if practicable.
B. HIGGINS, *Superintendent, etc.*
Sandusky City, Ohio, March 15, 1849. 2m.13

SPRING STEEL FOR LOCOMOTIVES, TENDERS AND CARS.—The subscriber is engaged in manufacturing spring steel from 1¼ to 6 inches in width, and of any thickness required: large quantities are yearly furnished for railroad purposes, and wherever used its quality has been approved of. The establishment being large, can execute orders with great promptitude, at reasonable prices, and the quality warranted. Address J. F. WINSLOW, *Agent,*
Albany Iron and Nail Works.

SCHENECTADY LOCOMOTIVE WORKS
SCHENECTADY, N. Y.
THESE Works are in full operation in Manufacturing to order, Locomotive Steam Engines & Tenders, of the best principle and construction of material, using wrought iron heavy frames with pedestals welded thereto, and all parts of the engine made of the best wrought iron, except cylinders, pumps and boxes—obtaining greater durability, and carrying less weight over the road, than engines constructed of cast iron.
Wrought Iron Tires made any required size, and Tire Bars bent and welded with dispatch.
Chilled Wheels for Cars, Tucks and Tenders, made from the toughest iron.
Driving and Tender and Car Wheels fitted to Axles with Brass Boxes and Springs, and Railroad Machinery generally. Manufactured and for sale by
E. S. NORRIS.
April 11, 1849.

P. S. DEVLAN & CO's Patent Lubricating Oil.

THE Subscribers invite the attention of Railroads, Steamboats, Machinists, etc., to the above article of Oil; they are prepared to supply it in any quantity. Certificates of its superiority over all other oils, from several of the largest Works and Railroads, can be seen at our office. KENNEDY & GELSTON,
5½ Pine street, New York,
Sole Agents for the New England States and State of New York. 1y14

UPPER CANADA MINING COMPANY.

INCORPORATED BY ACT OF PARLIAMENT.

NOTICE is hereby given, that an ASSESSMENT OF ONE SHILLING AND THREE PENCE PER SHARE has been levied on the *STOCK OF THE UPPER CANADA MINING COMPANY*—one half thereof, or Seven Pence Halfpenny per share, being payable, at the office of the Company, in Hamilton, or to Messrs. W. & J. Currie, Agents, Wall St. New York, on the *First Day of April* next, and the other half on the *First day of July* next ensuing. By order, J. D. Brondgeest,
Secretary U. C. M. C.
Hamilton, 24th February, 1849. 12tf

WILLIAM JESSOP & SONS' CELEBRATED CAST-STEEL.

The subscribers have on hand, and are constantly receiving from their manufactory,
PARK WORKS, SHEFFIELD,
Double Refined Cast Steel—square, flat and octagon.
Best warranted Cast Steel—square, flat and octagon.
Best double and single Shear Steel—warranted.
Machinery Steel—round.
Best and 2d gy. Sheet Steel—for saws and other purposes.
German Steel—flat and square, "W. I. & S." "Eagle" and "Goat" stamps.
Genuine "Sykes," L Blister Steel.
Best English Blister Steel, etc., etc., etc.
All of which are offered for sale on the most favorable terms by WM. JESSOP & SONS,
91 John street, New York.
Also by their Agents—
Curtus & Hand, 47 Commerce street, Philadelphia.
Alex'r Fullerton & Co., 119 Milk street, Boston.
Stickney & Beatty, South Charles street, Baltimore,
May 6, 1848.

Direct Action Engines
FOR STEAMBOATS.

THE PATENT DOUBLE CYLINDERS,

AND ALSO

THE ANNULAR RING PISTON ENGINES,

of Messrs. Maudslay, Sons & Field, of London, may be built in the United States, under license, which can be obtained of their agent,

THOMAS PROSSER, C. E.
28 Platt street, New York.

May 6, 1848.

LAP-WELDED WROUGHT IRON TUBES for Tubular Boilers, from 1¼ to 15 inches diameter, and any length not exceeding 17 feet—manufactured by the Caledonian Tube Company, Glasgow, and for sale by IRVING VAN WART,
12 Platt street, New York.

JOB CUTLER, *Patentee.*

☞ These Tubes are extensively used by the British Government, and by the principal Engineers and Steam Marine and Railway Companies in the Kingdom.

DEAN, PACKARD & MILLS,
MANUFACTURERS OF ALL KINDS OF

RAILROAD CARS,

SUCH AS

PASSENGER, FREIGHT AND CRANK CARS,

— ALSO —

SNOW PLOUGHS AND ENGINE TENDERS
OF VARIOUS KINDS.

CAR WHEELS and AXLES fitted and furnished at short notice; also, STEEL SPRINGS of various kinds; and

SHAFTING FOR FACTORIES.

☞ *The above may be had at order at our Car Factory,*

REUEL DEAN,
ELIJAH PACKARD, } SPRINGFIELD, MASS.
ISAAC MILLS,

1y48

Mattewan Machine Works.

THE Mattewan Company have added to their Machine Works an extensive LOCOMOTIVE ENGINE department, and are prepared to execute orders for *Locomotive Engines* of every size and pattern—also *Tenders, Wheels, Axles,* and other railroad machinery, to which they ask the attention of those who wish such articles, before they purchase elsewhere.

STATIONARY ENGINES, BOILERS, ETC., Of any required size or pattern, arranged for driving *Cotton, Woollen, or other Mills,* can be had on favorable terms, and at short notice.

COTTON AND WOOLLEN MACHINERY, Of every description, embodying all the modern improvements, second in quality to none in this or any other country, made to order.

MILL GEARING,

Of every description, may be had at short notice, as this company has probably the most extensive assortment of patterns in this line, in any section of the country, and are constantly adding to them.

TOOLS.

Turning Lathes, Slabbing, Plaining, Cutting and *Drilling Machines,* of the most approved patterns, together with all other tools required in machine shops, may be had at the Mattewan Company's Shops, Fishkill Landing, or at 39 Pine street, New York.

WM. B. LEONARD, *Agent.*

Devlan's Machinery Oil.

THE Subscribers, Agents for P. S. Devlan & Co's "Patent Lubricating Oil"—price 80c. per gallon 4 mos. or 3 per cent off for cash.

We refer to the following certificate of Messrs. Norris Brothers, in whose works, any one by calling can see the oil in use and judge for themselves.

NORRIS' LOCOMOTIVE WORKS. }
Philadelphia, April 2, 1849. }

We have been using throughout our Works, during the last six weeks, "Devlan's Lubricating Oil," and so far as we have been able to judge from its use, we think it preferable to the sperm oil generally used, for both heavy and light bearings. NORRIS, BROTHERS.

For sale by ALLEN & NEEDLES,
22 & 23 South Wharves,
14tf Philadelphia Pa.

LAP—WELDED
WROUGHT IRON TUBES

FOR

TUBULAR BOILERS,
FROM 1 1-2 TO 8 INCHES DIAMETER.

These Tubes are of the same quality and manufacture as those so extensively used in England, Scotland, France and Germany, for Locomotive, Marine and other Steam Engine Boilers.

THOMAS PROSSER,
Patentee.
28 Platt street, New York.

THE NEWCASTLE MANUFACTURING Co. continue to furnish at the Works, situated in the town of Newcastle, Del., Locomotive and other steam engines, Jack Screws, Wrought Iron Work and Brass and Iron Castings, of all kinds connected with Steamboats. Railroads, etc.; Mill Gearing of every description; Cast Wheels (chilled) of any pattern and size, with Axles fitted, also with wrought tires, Springs, Boxes and bolts for Cars; Driving and other wheels for Locomotives.

The works being on an extensive scale, all orders will be executed with promptness and despatch. Communications addressed to Mr. William H. Dobbs, Superintendent, will meet with immediate attention.

ANDREW C. GRAY,
a45 President of the Newcastle Manuf. Co.

TO RAILROAD COMPANIES AND MANUfacturers of Railroad Machinery. The subscribers have for sale American and English Bar Iron, of all sizes; English Blister, Cast, Shear and Spring Steel; Juniata Rods; Car Axles, made of double refined iron; Sheet and Boiler Iron, cut to pattern; Tires for Locomotive Engines, and other railroad carriage wheels, made from common and double refined B. O. Iron; the latter a very superior article. The Tires are made by Messrs. Baldwin and Whitney, Locomotive Engine Manufacturers of this city. Orders addressed to them, or to us, will be promptly executed.

When the exact diameter of the wheel is stated in the order, a fit to those wheels is guaranteed, saving to the purchaser the expense of turning them out inside.

THOMAS & EDMUND GEORGE,
a45 N. E. cor. 12th and Market sts., Philad., Pa.

NICOLL'S PATENT SAFETY SWITCH FOR Railroad Turnouts. This invention for some time in successful operation on one of the principal railroads in the country, effectually prevents engines and their trains from running off the track at a switch, left wrong by accident or design. It acts independently of the main track rails; being laid down or removed without cutting or displacing them.

It is never touched by passing trains, except when in use, preventing their running off the track. It is simple in its construction and operation, requiring only two castings and two rails; the latter, even if much worn or used, not objectionable.

Working models of the Safety Switch may be seen at Messrs. Davenport, Bridges & Kirk's Cambridge Port, Mass., and at the office of the Railroad Journal, New York.

Plans, Specifications, and all information obtained, on application to the Subscriber, Inventor and Patentee.

G. A. NICOLLS,
Reading, Pa.

MACHINE WORKS OF ROGERS KETCHUM & GROSVENOR, *Patterson, N. J.* The undersigned receive orders for the following articles manufactured by them of the most superior description in every particular. Their works being extensive, and the number of hands employed being large, they are enabled to execute both large and small orders with promptness and dispatch.

Railroad Work.—Locomotive Steam Engines and Tenders; Driving and other Locomotive Wheels, Axles Springs and Flange Tires; Car Wheels of Cast Iron a variety of patterns and chills; Car Wheels of Cast Iron with wrought tires; Axles of best American refined iron; springs; boxes and bolts for cars.

Cotton, Wool and Flax Machinery of all descriptions and of the most improved patterns, style and workmanship.

Mill gearing and millwright work generally, hydraulic and other presses; press screws; callenders; lathes and tools of all kinds; iron and brass castings of all descriptions.

ROGERS, KETCHUM & GROSVENOR,
Patterson, N. J., or 60 Wall St., New York.

IRON BRIDGES, BRIDGE & ROOF BOLTS, etc. STARKS & PRUYN, of Albany, New York. having at great expense established a manufactory with every facility of Machinery for Manufacturing Iron Bridges, Bridge and Roof Bolts, together with all kinds of the larger sizes of Screw Bolts, Iron Railings, Steam Boilers, and every description of Wrought Iron Work, are prepared to furnish to order, on the shortest notice, any of the above branches, of the very best of American Refined Iron, and at the lowest rates.

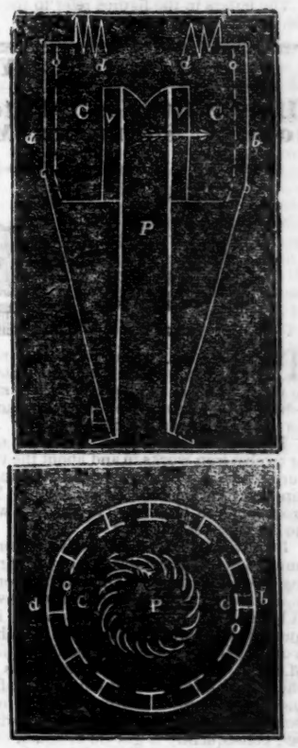
During the past year, S. & P. have furnished several Iron Bridges for the Erie Canal, Albany Basin, etc. —and a large amount of Railroad Bridge Bolts, all of which have given the most perfect satisfaction.

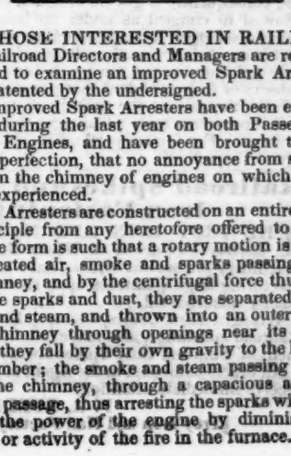
They are permitted to refer to the following gentlemen:

Charles Cook, Nelson J. Beach, Jacob Hinds,	Canal Commissioners of the State of New York.
Willard Smith, Esq.,	Engineer of the Bridges for the Albany Basin.
Messrs. Stone & Harris,	Railroad Bridge Builders, Springfield, Mass.
Mr. Wm. Howe,	Engineer & Bridge Builder, Utica, N. Y.
Mr. S. Whipple,	

January 1, 1849.

FRENCH & BAIRD'S
Patent Spark Arrester.





TO THOSE INTERESTED IN RAILROADS. Railroad Directors and Managers are respectfully invited to examine an improved Spark Arrester recently patented by the undersigned.

Our improved Spark Arresters have been extensively used during the last year on both Passenger and Freight Engines, and have been brought to such a state of perfection, that no annoyance from sparks or dust from the chimney of engines on which they are used is experienced.

These Arresters are constructed on an entirely different principle from any heretofore offered to the public. The form is such that a rotary motion is imparted to the heated air, smoke and sparks passing through the chimney, and by the centrifugal force thus acquired by the sparks and dust, they are separated from the smoke and steam, and thrown into an outer chamber of the chimney through openings near its top, from whence they fall by their own gravity to the bottom of this chamber; the smoke and steam passing off at the top of the chimney, through a capacious and unobstructed passage, thus arresting the sparks without impairing the power of the engine by diminishing the draught or activity of the fire in the furnace.

These chimneys and arresters are simple, durable and neat in appearance. They are now in use on the following roads, to the managers and other officers of which we are at liberty to refer those who may desire to purchase, or obtain further information in regard to their merits.

R. L. Stevens, president Camden and Amboy railroad company; Rich'd Peters, sup't Georgia railroad, Augusta, Ga.; G. A. Nicolls, sup't Reading railroad, Reading, Pa.; W. E. Morris, pres't Philadelphia, Germantown and Norristown railroad company, Philad.; E. B. Dudley, pres't W. and R. railroad co., Wilmington, N. C.; Col. Jas. Gadsden, pres't S. Carolina railroad co., Charleston, S. C.; W. C. Walker, agent V. and J. railroad, Vicksburg, Miss.; R. S. Van Rensselaer, sup't Hart. and N. H. railroad; W. R. McKee, sup't Lexington and Ohio railroad; T. L. Smith, sup't N. Jersey railroad and transp. co; J. Elliott, sup't M. P., Philadel. and Wilm. railroad; J. O. Sterns, sup't Elizabethtown and Somerville railroad; R. R. Cuyler, pres't Central railroad, Savannah, Ga.; J. D. Gray, sup't Macon, (Ga.) railroad; J. H. Cleveland, sup't of Southern railroad, Monroe, Mich.; M. F. Crittenden, sup't mo. power Central railroad, Detroit, Mich.; G. B. Fisk, pres't Long Island railroad, Brooklyn, L. I.

Orders for these chimneys and arresters, addressed to the subscribers, care of Baldwin and Whitney, of Philadelphia, will be promptly executed.

The subscribers will dispose of single rights, or rights for one or more States on reasonable terms.

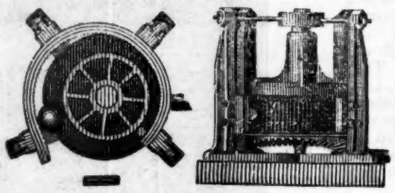
FRENCH & BAIRD.

Philadelphia, Pa., April 6, 1844.

The letters in the figures refer to the article given in the Journal of June, 1844.

MACHINERY.

Henry Burden's Patent Revolving Shingling Machine.



THE Subscriber having recently purchased the right of this machine for the United States, now offers to make transfers of the right to run said machine, or sell to those who may be desirous to purchase the right for one or more of the States.

This machine is now in successful operation in ten or twelve iron works in and about the vicinity of Pittsburgh, also at Phœnixville and Reading, Pa., Covington Iron Works, Md., Troy Rolling Mills, and Troy Iron and Nail Factory, Troy, N. Y., where it has give universal satisfaction.

Its advantages over the ordinary Forge Hammer are numerous: considerable saving in first cost; saving in power; the entire saving of shingler's, or hammerman's wages, as no attendance whatever is necessary, it being entirely self-acting; saving in time from the quantity of work done, as one machine is capable of working the iron from sixty puddling furnaces; saving of waste, as nothing but the scoria is thrown off, and that most effectually; saving of staffs, as none are used or required. The time required to furnish a bloom being only about six seconds, the scoria has no time to set, consequently is got rid of much easier than when allowed to congeal as under the hammer. The iron being discharged from the machine so hot, rolls better and is much easier on the rollers and machinery. The bars roll rounder, and are much better finished. The subscriber feels confident that persons who will examine for themselves the machinery in operation, will find it possesses more advantages than have been enumerated. For further particulars address the subscriber at Troy, N. Y. P. A. BURDEN.

Railroad Spikes and Wrought Iron Fastenings.

THE TROY IRON AND NAIL FACTORY, exclusive owner of all Henry Burden's Patented Machinery *for making Spikes*, have facilities for manufacturing large quantities upon short notice, and of a quality unsurpassed.

Wrought Iron Chairs, Clamps, Keys and Bolts for Railroad fastenings, also made to order. A full assortment of Ship and Boat Spikes always on hand.

All orders addressed to the Agent at the Factory will receive immediate attention.

P. A. BURDEN, *Agent*,
Troy Iron and Nail Factory, Troy, N. Y.

ENGINE AND CAR WORKS.

DAVENPORT & BRIDGES,

HAVING ASSOCIATED WITH THEM

MR. LEWIS KIRK, OF READING, PA.,

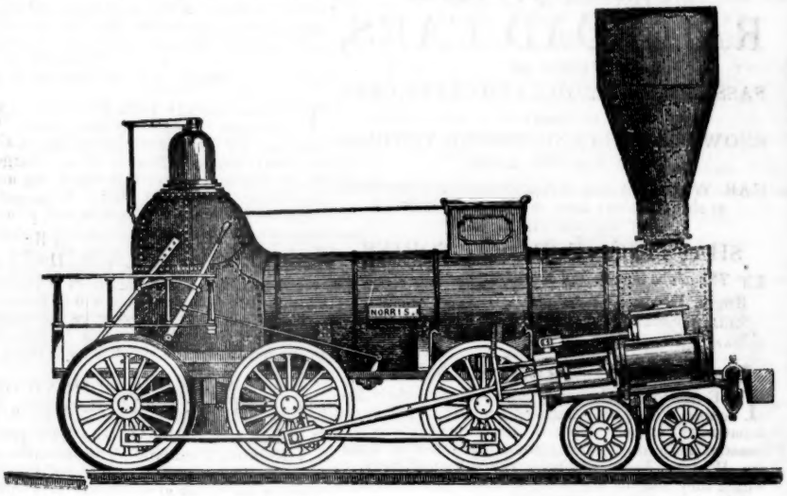
And recently enlarged their Establishment, (making it now the most extensive in the United States,) they are prepared to manufacture to order Locomotive Engines and Cars of every description. Stationary Engines, Steam Hammers, Boilers, and all kinds of Railroad Machinery. Also, Castings and Forge Irons of all kinds—including Chilled Wheels, Frogs, Chairs, Switches, Car Axles, and Locomotive Cranks, Connecting Rods, Steel Springs, Bolts, etc., etc. Orders from all parts of the country solicited for Engines and Cars, or any part or parts of the same. All orders will be furnished at short notice, and on as good terms as any manufactory in the country. Coaches pass our works every fifteen minutes during the day, from Brattle St., Boston.

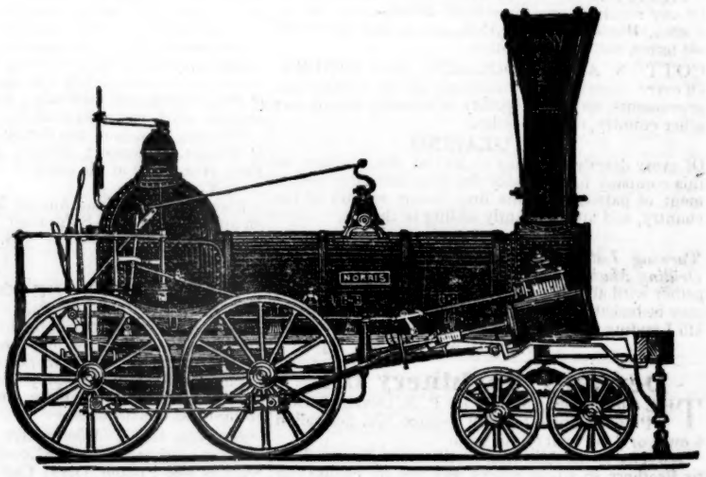
DAVENPORT, BRIDGES & KIRK.

Cambridgeport, Mass, February 16*th*, 1849.

NORRIS' LOCOMOTIVE WORKS.

BUSHHILL, SCHUYLKILL SIXTH-ST., PHILADELPHIA,





THE UNDERSIGNED Manufacture to order Locomotive Steam Engines of any plan or size.

Their shops being enlarged, and their arrangements considerably extended to facilitate the speedy execution of work in this branch, they can offer to Railway Companies unusual advantages for prompt delivery of Machinery of superior workmanship and finish.

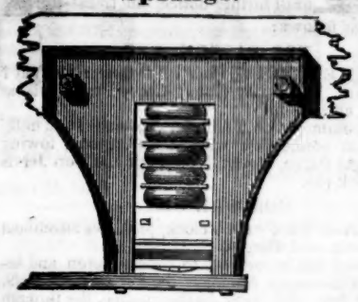
Connected with the Locomotive business, they are also prepared to furnish, at short notice, Chilled Wheels for Cars of superior quality.

Wrought Iron Tyres made of any required size—the exact diameter of the Wheel Centre, being given, the Tires are made to fit on same without the necessity of turning out inside.

Iron and Brass castings, Axles, etc., fitted up complete with Trucks or otherwise.

NORRIS, BROTHERS.

Fuller's Patent India-Rubber Springs.



THERE *can now be no ground of opposition whatever to these Springs.* The Commissioner of Patents has not only rejected the application for a Patent for a similar Spring, but *a Patent has just been granted for an entirely new species of India Rubber*, the quality of which can be surpassed by no other kind, as the experiments which have lately been publicly made, have fully proved. No extremes of heat or cold can effect it, nor will any amount of pressure permanently alter its shape. This Patent refutes the statement of the "New England Car Company" as to their sole right to use India Rubber.

The Spring (composed by alternate layers of India Rubber Discs and Metal Plates) is superior to any other form of Spring, for several reasons: It is the lightest, the most simple and most durable—there being less friction in this than in other kind; it can be regulated to any extent desired. A less quantity of Rubber is required in this form to make a good spring than in any other because each disc or ring of India Rubber is firmly supported by metal plates, and forms in itself a distinct spring—nor is any spiral spring required. The Patentee is consequently able to supply efficient springs at a less cost than any other parties can do. Purchasers are guaranteed in the use of these springs.

The New England Car Company have *no* right to make an India-rubber Spring with a Bolt through the centre. All companies using such a spring are liable to an action.

Fuller's spring has been used nearly four years with complete success. It is applicable equally to Passenger and Freight Cars, to Locomotives and Tenders.—Bumpers and Draw Springs are always kept on hand, which merely require screwing to a car. It has lately been applied also to several kinds of *Machines*.

Action will be brought against all persons infringing upon these patents.

The subscriber will show Models and Drawings of the various modes of application to Cars, Machines, Omnibuses, &c.

G. M. KNEVITT, Agent.

Principal office, No. 78 Broad st., New York.

Branch office, Messrs. James Lee & Co.'s, No. 18 India Wharf, Boston.

Mr. Hale, the President of the Boston and Worcester Railroad, wrote an article concerning Fuller's Springs. The "New England Car Company" take the liberty of publishing that article, omitting, however, a very important part; it is therefore given in full now, and the portion omitted by the New England Car Company is printed in italics, that the public may judge the manner in which this "company" pervert Mr. Hale's meaning.

[*From the Boston Advertiser of the 7th June*].

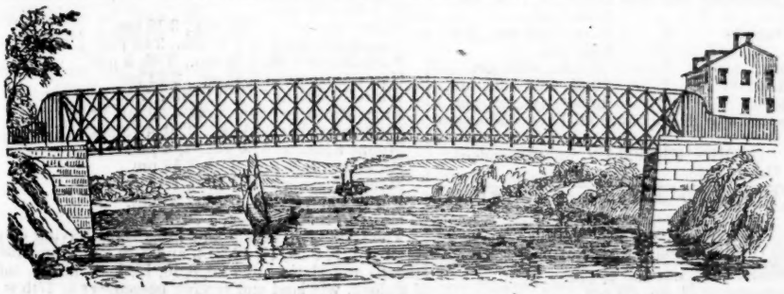
INDIA RUBBER SPRINGS FOR RAILROAD CARS.

"Of the numerous uses to which the wonderful elasticity and durability of India rubber, renders this material applicable, we are hardly aware of one, in which it has been more successful than in forming springs for railroad cars. We have had occasion to observe, for some months past, its application to this use, on one of the passenger cars on the Newton special train of the Boston and Worcester railroad.—It is there used not only for the springs on which the car rests, but for the springs attached to the draw bar, at each end of the car, to prevent any jar on the sudden commencement, or interruption of the motion of the car. For both these purposes it seems to be admirably adapted, and we do not learn that during that period in which it has been used, any defect has been discovered. It renders the movements of the car extremely easy, and protects it more effectually, we think, than any other spring we have seen in use, from every harsh or unpleasant motion, either vertical or horizontal. It is also simple in its form and application, extremely light, and little liable to get out of repair. During the period of some months in which we have seen the springs in operation, there is no apparent wear or diminution of its efficiency. *Each spring is composed of several circular layers of rings of India rubber, a thin metallic plate of the same size being interposed between each of the layers. From the simplicity of its form, it cannot be expensive, and it admits of being made more or less elastic almost at pleasure. The invention, we understand, was first patented in England, where it has been introduced into general use on several of the principal railroads, and we have no doubt it will come into very extensive use in this country. The patent for this invention, we understand, has been granted to Mr. W. C. Fuller, in England and France, and also in this country. Mr Knevitt, of New York, is the agent for the patentee in the United States, and he has established a branch office for the supply of the article in this city, as may be learned from an advertisement in another column of this paper.*"

CORROSIVE SUBLIMATE.

THIS article now extensively used for the preservation of timber, is manufactured and for sale by POWERS & WEIGHTMAN, manufacturing Chemists, Philadelphia.

Jan. 20, 1849.



RIDER'S PATENT IRON BRIDGE.

THE RIDER IRON BRIDGE having been fully tested on the Harlem Railroad, by constant use for about eighteen months, and found to answer the full expectations of its most sanguine friends, is now offered to the public with the utmost confidence as to its great utility over any other Bridge now known.

The plan of this Bridge is to use the iron so as to obtain its greatest longitudinal strength, and at the same time is so arranged as to secure the combined principles of the *Arch, Suspension and Triangle*, all under such controlling power as causes each to act in the most perfect and secure manner, and at the same time impart its greatest strength to the whole work.

THE IRON RIDER BRIDGE COMPANY are prepared to furnish large quantities of Iron Bridging for Railroad or other purposes, made under the above patent, at short notice, and at prices far *more economical* than the best wood structure, and on *certain conditions*, the first cost may be made the same as wood.

Models, and pamphlets giving full descriptions of the RIDER BRIDGE, with certificates based on actual trial from undoubted sources, will be found at the office of the Company, 74 BROADWAY, *up stairs*, or of W. RIDER & BROTHERS, 59 *Liberty Street*, where terms of contract will be made known, and where orders are solicited.

M. M. WHITE,
Agent for the Company.

November 25, 1848.

F. M. Ray's Patent India-rubber Car Springs.

India-rubber Springs for Railroad Cars were first introduced into use, about two years since, by the inventor. The New England Car Company, now possesses the exclusive right to use, and apply them for this purpose in the United States. It is the only concern that has tested their value by actual experiment, and in all arguments in favor of them, drawn from experience of their use, are in those cases where they have been furnished by this company. It has furnished every spring in use upon the Boston and Worcester road, and, in fact, it has furnished all the springs ever used in this country, with one or two exceptions, where they have been furnished in violation of the rights of this company; and those using them have been legally proceeded against for their use, *as will invariably be done in every case of such violation.*

The Spring formed by alternate layers of India-rubber discs and metal plates, which Mr. Fuller claims to be his invention, was invented by Mr. Ray in 1844.—In proof of which we give the deposition of Osgood Bradley, of the firm of Bradley & Rice, of Worcester, Mass., car manufacturers, and men of the highest respectability. In this deposition, in relation to the right of parties to use these springs, he says:

"I have known Mr. Ray since 1835. In the last of May or the commencement of June, 1844, he was at my establishment, making draft of car trucks. He staid there until about the first of July, and left and went to New York. Was gone some 8 or 10 days, and returned to Worcester. He then on his retnrn said he had a spring that would put iron and steel springs into the shade. Said he would show it to me in a day or two. He showed it to me some two or three days afterwards. It was a block of wood with a hole in it. In the hole he had three pieces of India-rubber, with iron washers between them, such as are used under the nuts of cars. Those were put on to a spindle running through them, which worked in the hole. The model now exhibited is similar to the one shown him by Ray. After the model had been put into a vice, witness said that he might as well make a spring of putty. Ray then said that he meant to use a different kind of rubber, and referred to the use of *Goodyear's Metallic Rubber*, and that a good spring would grow out of it." There are many other depositions to the same effect.

The history of the invention of these springs, together with these depositions, proving the priority of the invention of Mr. Ray, will be furnished to all interested at their office in New York.

This company is not confined to any particular form in the manufacture of their springs. They have applied them in various ways, and they warrant all they sell.

The above cut represents precisely the manner in which the springs were applied to the cars on the Boston and Worcester road, of which Mr. Hale, President of this road speaks, and to which Mr. Knevitt refers in his advertisement. Mr. Hale immediately corrected his mistake in the article quoted by Mr. Knevitt, as will be seen by the following from his paper of June 8, 1848. He says:

INDIA-RUBBER SPRINGS FOR RAILROAD CARS.—"In our paper yesterday, we called attention to what promises to be a very useful invention, consisting of the application of a manufacture of India-rubber to the construction of springs for railroad cars. Our object was to aid in making known to the public, what appeared to us the valuable properties of the invention, as they had been exhibited on trial, on one of the passenger cars of the Boston and Worcester railroad. As to the origin of the invention we had no particular knowledge, but we had been informed that it was the same which had been introduced in England, and which had been subsequently patented in this country; and, we were led to suppose that the manufacturers who have so successfully applied this material, in the case to which we referred had become possessed of the right to use that patent. It will be seen from the following communication, addressed to us by a member of the company, by which the Worcester railroad was supplied with the article upon which our remarks were based, that we were in an error, and that the springs here introduced are an American invention, as well as an American manufacture. How far the English invention may differ from it we have had no opportunity of judging."

MR. HALE:—"The New England Car Co., having been engaged for the last six months in introducing the Vulcanized India-rubber Car Spaings upon the different railroads in this and other states, and having in particular introduced it upon the Boston and Worcester railroad with perfect success, were much gratified to find, by your paper of this morning, that the article had given satisfaction to the president of that corporation, and the terms of just commendation in which you were pleased to speak of it. But their gratification was scarcely equalled by their surprise, when, or arriving at the close of your paragraph, they found the results of all their labors attributed to a foreign source, with which the New England Car Co. has no connection. The material used on the Boston and Worcester railroad, and all the other railroads in this country, where any preparation of India-rubber has been successfully applied, is entirely an American invention, patented in the year 1844 to Charles Goodyear, of New Haven, Conn., and the application of it to this purpose and the form in which it is applied are the invention of F. M. Ray of New York. The only material now in use, and so far as has yet appeared, the only preparation of India rubber capable of answering the purpose, has been furnished under these patents by the New England Car Company, manufactured under the immediate inspection of their own agent. If any other should be produced, the right to use it would depend upon the question of its interference with Mr. Goodyear's patent. The New England Car Company have their place of business in this city at No. 99 State street, and are prepared to answer all orders for the Vulcanised India rubber Car Springs, of the same quality and of the same manufacture as those which they have already placed on your road, and most fo the other roads terminating in this city."

And yet Mr. Knevitt is using these experiments made upon the Springs of the Car Company to induce the public to purchase his springs, and is attempting to impose upon them the belief that the springs used were furnished by him! We ask whether such a course is honorable, or entitles his statements to much consideration from the public.

The above Springs are for sale 98 Broadway, New York, and 99 State street, Boston.

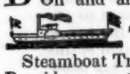
EDWARD CRANE Agent, Boston.
F. M. RAY, Agent, New York.

Boston, May 8, 1849.

RAILROADS.

BOSTON AND PROVIDENCE RAILROAD.

On and after MONDAY, APRIL 2d, the



Trains will run as follows:—

Steamboat Train—Leave Boston at 5 pm Leaves Providence on the arrival of the train from Stonington.

Accommodation Trains—Leave Boston at 8 am., and 4 pm. Leave Providence at 8½, a.m., and 4, pm.

Dedham Trains—Leave Boston at 8½ am, 12 m., 3½, 6½, and 10½ pm. Leave Dedham at 7,9½, am., 2½, 5, and 8 pm.

Stoughton Trains—Leave Boston at 1 am., and 5½ pm. Leave Stoughton at 11½ am., and 3½ pm.

Freight Trains—Leave Boston at 11 am., and 6 pm. Leave Providence at 4 am., and 7.40 am.

On and after Wednesday, Nov. 1, the DEDHAM TRAIN will run as follows: Leave Boston at 9 am., 12 m., 3, 5½, and 10½ pm. Leave Dedham at 8, 10½, am., 1½, 4½, and 9 pm.

WM. RAYMOND LEE, Sup't.

NORWICH AND WORCESTER RAILROAD.

Summer Arrangement.—1849.

Accommodation Trains daily (Sundays excepted.)

Leave Norwich at 6 am., 12 m., and 2 55 pm.

Leave Worcester at 7½ and 10½ am., and 4½ pm., connecting with the trains of the Boston and Worcester, Providence and Worcester, Worcester and Nashua and Western railroads.

New York & Boston Line. Railroad & Steamers. Leave New York and Boston daily, Sundays excepted, at 5 pm.—At New York from pier No. 1, North River.—At Boston from corner Lincoln and Beach streets, opposite United States Hotel. The steamboat train stops only at Framingham, Worcester, Danielsonville and Norwich.

Freight Trains leave Norwich and Worcester daily, Sundays excepted.—From Worcester at 6½ am., from Norwich at 7 am.

☞ *Fares are Less when paid for Tickets than when paid in the Cars.* ☜

32 1y S. H. P. LEE, Jr., Sup't.

EASTERN RAILROAD, WINTER ARRANGEMENT.

On and after MONDAY, Oct. 2, 1848,

Trains will leave Eastern Railroad Depot, Eastern Avenue, Commercial-street, Boston, daily, (Sundays excepted.)

For Lynn, 7, 9 11½, a.m., 12, 2½, 3½, 4½, 6, p.m.
Salem, 7, 9, 11½, a.m., 12, 2½, 3½, 4½, 6, p.m.
Manchester, 9, a.m., 3½, p.m.
Gloucester, 9, a.m., 3½, p.m.
Newburyport, 7, 11½, a.m., 2½, 4½, p.m.
Portsmouth, 7, am., 2½, 4½, pm.
Portland, Me., 7, am., 2½, pm.

And for Boston,

From Portland, 7½, am., 3, pm.
Portsmouth, 7, 9½*, am., 5½*, pm.
Newburyport, 7½, 10½*, am., 2, 6*, pm.
Gloucester, 7½, am., 3½ pm.
Manchester, 8, am., 3½, pm.,
Salem, 7½, 8½*, 9*, 10½, 11-40*, am., 2½, 3*, 4½*, 7*, pm.
Lynn, 7½, 8½*, 9½*, 10½, 11-55*, am., 2½, 3½*, 4½*, 7½*, pm.

☞ On Monday, Wednesday, and Friday, a train will leave Boston for Lynn and Salem, at 7 o'clock; p.m.

On Tuesday, Thursday, and Saturday, a train will leave EAST BOSTON for Lynn and Salem, at 10½ o'clock, pm.

* *Or on their arrival from the East.*

MARBLEHEAD BRANCH.

Trains to leave
Marblehead for Salem, 7½, 8½, 10, 11-25, am. 2, 4½, 6½, pm.
Salem for Marblehead, 7½, 9½, 10½, am., 12½, 3½, 5½, 6½, pm.

GLOUCESTER BRANCH.

Trains leave
Salem for Manchester at 9½, am., 4½, pm.
Salem for Gloucester at 9½, am., 4½, pm.
Trains leave
Gloucester for Salem at 7½, am., 3½ pm.
Manchester for Salem at 8, am., 3½ pm.
Freight Trains each way daily. Office 1 Merchants' Row, Boston.

Feb. 3. JOHN KINSMAN, Superintendent.

ESSEX RAILROAD—SALEM to LAWRENCE,

through Danvers, New Mills, North Danvers, Middleton, and North Andover.

On and after Monday, Oct. 2, 1848,

trains leave daily (Sundays excepted,) Eastern Railroad Depot, Washington-st.

Salem for South Danvers at 7.45, 9, am., 12.45, 3.15, 6.45, pm.
Salem for North Danvers at 7.45, 9, am., 12.45, 3.15, pm.
Salem for Lawrence, 9*, am., 3.15*, pm.
Danvers " 9.10, am., 3.15, pm.
North Danvers" 9.20, am., 3.35, pm.
Middleton " 9.30, am., 3.45, pm.
North Andover " 10, am., 4.20, pm.
South Danvers for Salem at 7.45, 8.45, 11.30, am. 2, 45.5, pm.
North Danvers " 8.20, 11.10, am., 1.40, 5.40, pm.
Middleton " 11, am., 4.30, pm.
North Andover " 10.35, am., 5.05, pm.
Lawrence " 10.30*, am., 5*, pm.

* These trains will not stop at Frye's Mills nor Grove-st.

JOHN KINSMAN, Superintendent.

Salem, Oct. 2, 1848.

BOSTON AND MAINE RAILROAD.

Spring Arrangement, 1849.

Outward Trains from Boston

For Portland at 6½ am. and 2½ pm.
For Rochester at 6½ am., 2½ pm.
For Great Falls at 6½ am., 2½, 4½ pm.
For Haverhill at 6½ and 12 m., 2½, 4½ 6 pm.
For Lawrence at 6½, 9, am., 12 m., 2½, 4½, 6, 7½ pm.
For Reading 6½, 9 am., 12 m., 2½, 4½, 6, 7½, 9½* pm.

Inward trains for Boston

From Portland at 7½ am., 3 pm.
From Rochester at 9 am., 4½ pm.
From Great Falls at 6½, 9½ am., 4½ pm.
From Haverhill at 7, 8½ 11 am., 3, 6½ pm.
From Lawrence at 6, 7½, 8½, 11½, am., 1½, 3½, 7 pm.
From Reading at 6½, 7½, 9, am., 12 m., 2, 3½, 6, 7½ pm.

MEDFORD BRANCH TRAINS.

Leave Boston at 7, 9½ am., 12½, 2½, 5½, 6½, 9½* pm.
Leave Medford at 6½, 8, 10½ am., 2, 4, 5½, 6½, pm.

* On Thursdays, 2 hours; on Saturdays, 1 hour later. CHAS. MINOT, Super't.

Boston, March 27, 1849.

NEW YORK AND ERIE RAILROAD.

WINTER ARRANGEMENT.

On Monday, January 1st, and until further notice, the trains

will run as follows:

FOR PASSENGERS.

Leave NEW YORK, (foot of Duane street,) at 7 o'clock, am., by steamer Erie. Leave Port Jervis at 6 o'clock am.

An Accommodation Train, for passengers and milk, will run in connection with the steamboat towing the Freight Barge, leaving New York and Port Jervis at 4 o'clock pm.

FOR FREIGHT.

Leave New York at 4 o'clock, pm., per steamboat New Haven, and Barges.

The Road will be opened to Binghampton and intermediate places on Monday, the 8th January, 1849, on which day, and until further notice, the through trains will run as follows:

FOR PASSENGERS.

Leave New York from Duane street Pier, at eight o'clock, and Binghamton at 7 o'clock, am., daily.

FOR FREIGHT.

Leave New York at 4 o'clock, pm., and Binghamton at 7 o'clock, am., daily, Sundays excepted.

H. C. SEYMOUR, Superintendent.

January 1st, 1849. ja3

NEW YORK & HARLEM RAILROAD, DAILY.

WINTER ARRANGEMENT.

ON and after December 1st, 1848, the Cars will run

as follows, until further notice:—

Trains will leave the City Hall, New York, for Harlem and Morrisiana at 7, 9, 9.30, 11, am. 12 m., 2, 4, 4.15, 5.30, pm.

Trains will leave the City Hall, New York, for Fordham and Williams' Bridge, at 7 30 and 9 30 am., 12 m., 2, 4 15, 5 30 pm.

Trains will leave the City Hall, New York, for Hunt's Bridge, Underhill's and Hart's Corners, at 9 30 am., 4 15 pm.

Trains will leave the City Hall, New York, for Tuckahoe and White Plains, at 7 30 and 9 30 am., 3 and 4 15 pm.

Trains will leave Davis' Brook, Pleasantville, Chapequa, Mount Kisko, Bedford, Mechanicsville, Purdy's and Croton Falls, at 7 30 and 9 30 am., 3 pm.

NOTICE—Passengers are reminded of the great danger of standing upon the platform of the cars, and hereby notified that the practice is contrary to the rules of the Company, and that they do not admit any responsibility for injury sustained by any passenger upon the platforms, in case of accident.

Returning to New York will leave

Morrisiana and Harlem at 7 20,8, 8 50, 10 am., 12m., 1 35, 3, 3 45, 5, 5 35 pm.
Fordham and William's Bridge at 7, 8 30, 9 50 am., 1 15, 3 25, 5 20 pm.
Hunt's Bridge at 8 20, am., 3 18 pm.
Underhill's Road at 8 10 am., 3 08 pm.
Tuckahoe at 8 05, 9 30 am., 3 05, 5 pm.
Hart's Corners at 7 55 am., 2 52 pm.
White Plains at 7 45, 9 10 am., 2 45, 4 40 pm.
Davis' Brook at 9 am., 2 35, 4 30 pm.
Pleasantville at 8 49 am., 2 20, 4 19 pm.
Mount Kisko at 8 30 am., 2, 4 pm.
Bedford at 8 25 am., 1 55, 3 55 pm.
Mechanicsville at 8 15 am., 1 45, 3 45 pm.
Purdy's at 8 05 am., 1 35, 3 35 pm.
Croton Falls, at 8 am., 1 30, 3 30 pm.

The trains for Harlem and Morrisiana leaving City Hall at 7, 9, 9 30, 11, 12, 2, 4, and 5 30, and from Morrisiana and Harlem at 7 20, 8, 10, 12, 1 35, 3, 3 45, and 5 o'clock, will land and receive passengers at 27th st., 42d, 51st, 61st, 79th, 86th, 109th, 115th, 125th, and 132d streets.

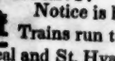
The 7 30 am., and 3 pm. Trains from New York to Croton Falls, and the 8 am. Train from Croton Falls will not stop between White Plains and New York, except at Tuckahoe, Williams' Bridge and Fordham.

A car will precede each train ten minutes to take up passengers in the city. The last car will not stop, except at Broome st. and 32d street.

Freight Trains leave New York at 6 am. and 1 pm.: leave Croton Falls at 7 am. and 2 30 pm., Sundays excepted.

NOTICE—On Sundays the 7 am. to Harlem and Morrisiana, returning at 8 o'clock, and the 7 30 am. to Croton Falls, returning 1 30 pm., will be omitted, and the 7 am. from Williams Bridge will leave at 7 40 and Morrisiana and Harlem at 8 o'clock am.

ST. LAWRENCE & ATLANTIC RAILROAD COMPANY.



Notice is hereby given that the Trains run twice per day between Montreal and St. Hyacinthe, leaving each terminus alternately, until further notice.

The first train starts from St. Hyacinthe at 7 o'clock a.m., reaching Montreal at 8½ a.m., leaving Montreal at 2 p.m., and reaching St. Hyacinthe at 3½ p.m.

The second train leaves Montreal at 9 o'clock, a.m., reaching St. Hyacinthe at 10½ a.m., leaving St. Hyacinthe at 4 p.m., reaches Montreal at 5½ p.m.

THOMAS STEERS, *Secretary.*

March 31, 1849.

BALTIMORE AND SUSQUEHANNA RAILROAD.—Reduction of Fare.

Morning and Afternoon Trains between Baltimore and York.—The Passenger Trains run daily, except Sundays, as follows:

Leave Baltimore at	9 am. and 3½ pm.
Arrive at	9 am. and 6½ pm.
Leave York at	5 am. and 3 pm.
Arrive at	12½ pm. & 8 pm.
Leave York for Columbia at	1½ pm. & 8 am.
Leave Columbia for York at	8 am. & 2 pm.

Fare:

Fare to York	$1 50
" Wrightsville	2 00
" Columbia	2 12½

Way points in proportion.

PITTSBURG, GETTYSBURG, AND HARRISBURG.

Through tickets to Pittsburg via stage to Harrisburg - - - - - $9

Or via Lancaster by railroad - - - 10

Through tickets to Harrisburg or Gettysburg - 3

In connection with the afternoon train at 3½ o'clock, a horse car is run to Green Spring and Owing's Mill, arriving at the Mills at - - 5½ pm.

Returning, leaves Owing's Mills at - - 7 am.

D. C. H. BORDLEY, Sup't.

31 1y Ticket Office, 63 North st.

GEORGIA RAILROAD. FROM AUGUSTA TO ATLANTA—171 MILES.

AND WESTERN AND ATLANTIC RAILROAD, FROM ATLANTA TO DALTON, 100 MILES.

This Road, in connection with the South Carolina Railroad, and Western and Atlantic Railroad, now forms a continuous line, 408 miles in length, from Charleston to Dalton (Cross Plains) in Murray county, Ga. 32 miles from Chattanooga, Tenn.

RATES OF FREIGHT.

		Between Augusta and Dalton. 271 miles.	Between Charleston, and Dalton. 408 miles.
1st class	Boxes of Hats, Bonnets, and Furniture, per cubic foot - -	$0 18	$0 28
2d class	Boxes and Bales of Dry Goods, Saddlery, Glass, Paints, Drugs, and Confectionary, per 100 lbs.	1 00	1 50
3d class	Sugar, Coffee, Liquor, Bagging, Rope, Cotton, Yarns Tobacco, Leather, Hides, Copper, Tin, Feathers, Sheet Iron, Hollow ware, Castings, Crockery, etc.	0 60	0 85
4th class	Flour Rice, Bacon, Pork, Beef, Fish, Lard, Tallow, Beeswax, Bar Iron, Ginseng, Mill Gearing, Pig Iron, and Grindstones, etc. - - -	0 40	0 65
	Cotton, per 100 lbs. -	0 45	0 70
	Molasses per hogshead -	8 50	13 50
	" " barrel - -	2 50	4 25
	Salt per bushel - -	0 18	
	Salt per Liverpool sack -	0 65	
	Ploughs, Corn Shellers, Cultivators, Straw Cutters, Wheelbarrows - -	0 75	1 50

German or other emigrants, in lots of 20 or more, will be carried over the above roads at 2 cents per mile.

Goods consigned to S. C. Railroad Company will be forwarded free of commissions. Freights payable at Dalton.

F. C. ARMS,

44*1y Sup't of Transportation.

LITTLE MIAMI RAILROAD.—WINTER ARRANGEMENT.

Change of Hours.

On and after Thursday, November 9th, 1848, until further notice, Passenger Trains will run as follows:

Leave Depot East Front street at 9½ o'clock, am., and 2½ o'clock, p.m., for Milford, Foster's Crossings, Deerfield, Morrow, Waynesville, Spring Valley, Xenia, Yellow Springs, and Springfield.

Returning, leave Springfield, at 2½ o'clock, and 9½ o'clock, am.

Passengers for New York, Boston, and intermediate points, should take the 9½ o'clock, am., Train from Cincinnati.

Passengers for Columbus, Zanesville, Wheeling and intermediate towns, should take the 9½ o'clock, am., Train.

The Ohio Stage Company are running the following lines in connection with the Trains:

A Daily Daylight Line to Columbus from Springfield in connection with the Morning Train from Cincinnati. Also, Daily Lines to Columbus, from Xenia and Springfield, connecting with the 2½ o'clock, pm. Train from Cincinnati.

The 2½, pm., Train from Cincinnati, and 2½, am., Train from Springfield, are intended for the accommodation of Way Passengers only, and will be eight hours on the road.

Fare from Cincinnati to Xenia	-	-	$1 90
Do	do	Springfield - -	2 50
Do	do	Sandusky City -	6 50
Do	do	Buffalo - -	10 00
Do	do	Columbus - -	4 50

For other information and through tickets, apply at the Ticket Office on Broadway, near Front-st., Cincinnati.

W. H. CLEMENTS, Superintendent.

☞ The Company will not be responsible for Baggage exceeding 50 dollars in value, unless the same is returned to the Conductors or Agent, and freight paid at the rate of a passage for every 500 dollars in value to that amount.

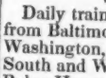
BALTIMORE AND OHIO RAILROAD, MAIN STEM.

The Train carrying the Great Western Mail leaves Baltimore every morning at 7½, and Cumberland at 8 o'clock, passing Ellicott's Mills, Frederick, Harper's Ferry, Martinsburgh and Hancock, connecting daily each way with—the Washington Trains at the Relay House seven miles from Baltimore, with the Winchester Trains at Harper's Ferry—with the various railroad and steamboat lines between Baltimore and Philadelphia, and with the lines of Post Coaches between Cumberland and Wheeling and the fine Steamboats on the Monongahela Slack Water between Brownsville and Pittsburgh. Time of arrival at both Cumberland and Baltimore 5½ P. M. Fare between these points $7, and 4 cents per mile for less distances.—Fare through to Wheeling $11, and time about 36 hours, to Pittsburgh $10, and time about 32 hours.—Through tickets from Philadelphia to Wheeling $13, to Pittsburgh $12. Extra train daily, except Sundays, from Baltimore to Frederick at 4 P. M., and from Frederick to Baltimore at 8 A. M.

WASHINGTON BRANCH.

Daily trains at 9 A. M., and 5 P. M., and 12 at night from Baltimore, and at 6 A. M. and 5½ P. M. from Washington, connecting daily with the lines North, South and West, at Baltimore, Washington, and the Relay House. Fare $1 60 through between Baltimore and Washington, in either direction, 4 cents per mile for intermediate distances. s13 y1

PHILADELPHIA, WILMINGTON, & BALTIMORE RAILROAD.



Summer Arrangement.

April 1st, 1849.—Fare $3.

Leave Philadelphia 8½ am., and 10 pm.

Leave Baltimore 9 am, and 8 pm.

Sunday—Leave Philadelphia at 10 pm.

" " Baltimore at 8 pm.

Trains stop at way stations.

Charleston, S. C.

Through tickets Philadelphia to Charleston, $20.

Pittsburg and Wheeling.

Through ticket, Philadelphia to Pittsburg, $12.

" " Wheeling, 13.

Through tickets sold at Philadelphia office only.

Wilmington Accommodation.

Leave Philadelphia at 12 m, 4 and 7 pm.

Leave Wilmington at 7½ am., 4½ and 7 pm.

Newcastle Line.

Leave Philadelphia at 2½ pm.—Baltimore at 1½ pm. Fare $3.—Second class, $2.

N.B.—Extra baggage charged for.

I. R TRIMBLE, Gen. Supt.

PHILADELPHIA & READING RAILROAD.

Passenger Train Arrangement for 1848.

A Passenger Train will leave Philadelphia and Pottsville daily, except Sundays, at 9 o'clock am.

The Train from Philadelphia arrives at Reading at 12 18 m.

The Train from Pottsville arrives at Reading at 10 43 am.

	Miles.	No. 1.	No. 2
Between Phila. and Pottsville,	92	$3.50 and	$3.00
" " Reading	58	2.25 and	1.90
" Pottsville "	34	1.40 and	1.20

Five minutes allowed at Reading, and three at other way stations.

Passenger Depot in Philadelphia corner of Broad and Vine streets. 8tf.

CENTRAL RAILROAD—FROM SAVANNAH to Macon. Distance 190 miles.

This Road is open for the transportation of Passengers & Freight

Rate of Passage - -	$8 00. Freight—
On weight goods generally,	50 cts. per hundred
On measurement goods	13 cts. per cubic ft.
On brls. wet (except molasses and oil) - -	1 50 per barrel.
On brls. dry (except lime) -	80 cts. per barrel.
On iron in pigs or bars, castings for mills, and unboxed machinery - - -	40 cts. per hundred
On hhds. and pipes of liquor, not over 120 gallons -	$5 00 per hhd.
On molasses and oil -	$6 00 per hhd.

Goods addressed to F. WINTER, Agent, forwarded free of commission.

THOMAS PURSE,
Gen'l Sup't Transportation.

SOUTH CAROLINA RAILROAD.—A PASSENGER Train runs daily from Charleston, on the arrival of the boats from Wilmington, N. C., in connection with trains on the Georgia, and Western and Atlantic Railroads—and by stage lines and steamers connects with the Montgomery and West Point, and the Tuscumbia Railroad in N. Alabama.

Fare through from Charleston to Montgomery daily - - - - - - $26 50

Fare through from Charleston to Huntsville, Decatur and Tuscumbia - - - 22 00

The South Carolina Railroad Co. engage to receive merchandize consigned to their order, and to forward the same to any point on their road; and to the different stations on the Georgia and Western and Atlantic Railroad; and to Montgomery, Ala., by the West Point and Montgomery Railroad.

JOHN KING, Jr., Agent.

THE WESTERN AND ATLANTIC RAILROAD.—This Road is now in operation to Oothcaloga, a distance of 80 miles, and connects daily (Sundays excepted) with the Georgia Railroad.

From Kingston, on this road, there is a tri-weekly line of stages, which leave on the arrival of the cars on Tuesday, Thursday and Saturday, for Warrenton, Huntsville, Decatur, and Tuscumbia, Alabama, and Memphis, Tennessee.

On the same days the stages leave Oothcaloga for Chattanooga, Jasper, Murfreesborough, Knoxville and Nashville, Tennessee.

This is the most expeditious route from the east to any of these places.

CHAS. F. M. GARNETT,
Chief Engineer

PATENT MACHINE MADE HORSE-SHOES.

The Troy Iron and Nail Factory have always on hand a general assortment of Horse Shoes, made from Refined American Iron.

Four sizes being made, it will be well for those ordering to remember that the size of the shoe increases as the numbers—No. 1 being the smallest.

P. A. BURDEN, *Agent,*
Troy Iron and Nail Factory, Troy, N. Y.

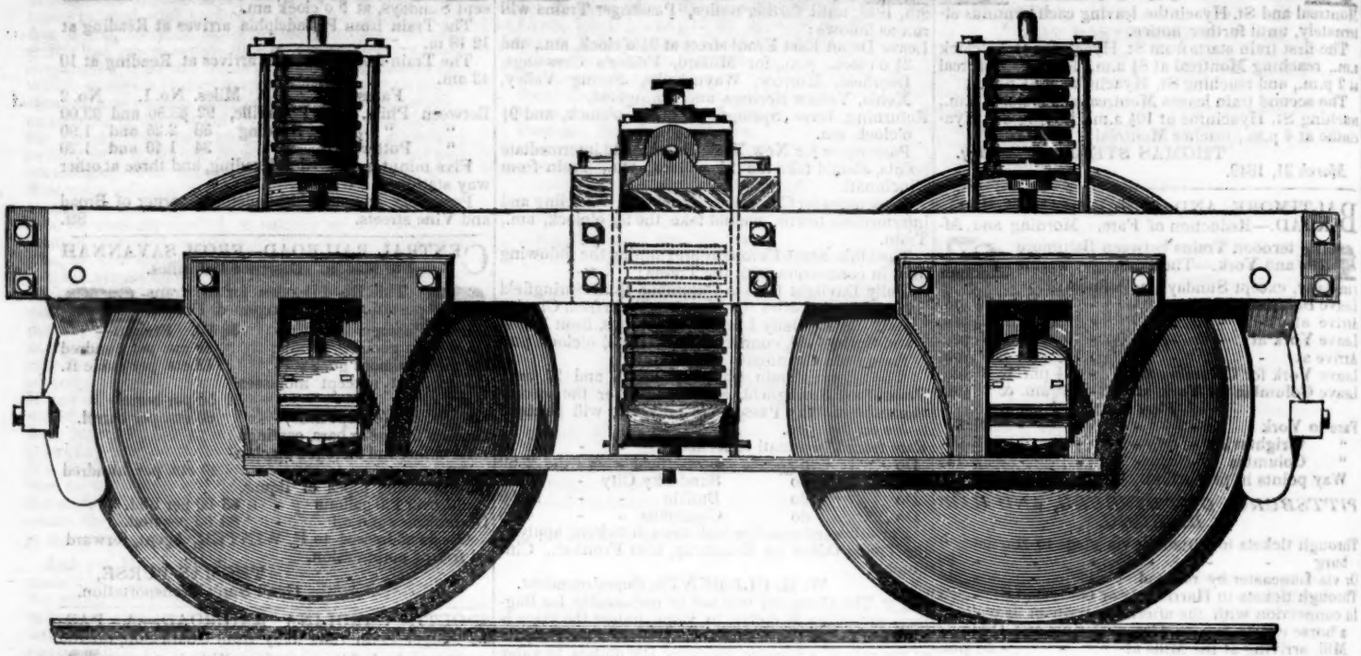
TO LOCOMOTIVE AND MARINE ENGINE Boiler Builders.

Pascal Iron Works, Philadelphia. Welded Wrought Iron Flues, suitable for Locomotives, Marine, and other Steam Engine Boilers, from 2 to 5 inches in diameter. Also, Pipes for Gas, Steam and other purposes; extra strong Tube for Hydraulic Presses; hollow Pistons for Pumps of Steam Engines etc. Manufactured and for sale by

MORRIS, TASKER & MORRIS,
Warehouse S. E. corner 3d and Walnut streets,
Philadelphia.

FOWLER M. RAY'S

METALLIC INDIA RUBBER CAR SPRINGS.



THE NEW ENGLAND CAR COMPANY have introduced these Springs, and they are now in operation on every Railroad terminating in Boston, and several others in New England and the Middle States. Their qualities are well understood, or may be readily ascertained by every person interested to know them. They require no recommendation from the Company. The only known compound of India Rubber good for anything for this purpose is the Vulcanised India Rubber, invented by Charles Goodyear, of New Haven, and the application of it, and the form in which it is used, were invented by F. M. Ray, of New York. The right to manufacture and sell the substance itself for the purpose of Railroad Carriage Springs, as well as the form and application of it, are held exclusively by the New England Car Company. No other Company, or individual, has any right to sell or use it for such purpose, or has attempted so to use it in this country.

The New England Car Company guarantee the right to use the article they sell for Railroad Carriage Springs only, against all adverse rights, whether under patents or otherwise; and all persons and corporations are cautioned against a similar use of the article, when purchased of any other parties.

The Springs they sell are all manufactured in a uniform manner, and under the immediate inspection of their own Agent, and have been proved and known to answer the purpose. None have been manufactured in this country or imported from abroad besides their own, which would at all answer the purpose; and if any such should be produced, it cannot be used for Car Springs, while Goodyear's patents, and the right of the New England Car Company under them, remain in force.

The New England Car Company are now prepared to answer orders for all that may be called for, on reasonable notice, and uniform and equitable terms.—They invite the most careful examination, and the severest scrutiny, into the merits of their Springs, wherever they have applied them. And if after such examination, your Company should judge it for their interest to adopt them, the N. E. Car Company would respectfully invite the patronage which they think they deserve, and are confident of receiving at your hands.

EDWARD CRANE, *Agent*,
Office 99 State-street.

Orders may also be left with WM. RIDER & BROTHERS, No. 58 Liberty-street, New York, or with
F. M. RAY, *Agent*,
100 Broadway, N. Y.

The following article from the pen of Mr. HALE, the President of the Boston and Worcester Railroad, expresses his opinion of this important improvement, as published in the Boston Daily Advertiser of June 7, 1848. He says:

"Of the numerous uses to which the wonderfu l el a ticity and durability of India Rubber renders this m a terial applicable, we are hardly aware of one in which it has been more successful than in forming springs for railroad cars. We have had occasion to observe, for some months past, its application to this use, on one of the passenger cars on the Newton special train of the Boston and Worcester railroad. It is there used, not only for the springs on which the car rests, but for the springs attached to the draw bar at each end of the car, to prevent any jar on the sudden advancement or interruption of the motion of the car. For both these purposes it appears to be admirably adapted, and we do not learn, that during the period in which it has been used, any defect in it has been discovered. It renders the movements of the car extremely easy, and protects it more effectually, we think than any other spring which we have ever seen in use, from every harsh or unpleasant motion, either vertical or horizontal. It is simple in its form and application, extremely light, and little liable to get out of repair.—During the period of some months, in which we have seen the springs in operation, there is no apparent wear or diminution of their efficacy."

The above statement of Mr. Hale agrees with my own observation in all particulars.

WM. PARKER, Supt., B. & W. R. R.

June 8, 1848.

I fully concur in the foregoing statement, from practical observation of its use for the last five months, on the Boston and Worcester railroad corporation cars.

D. N. PICKERING, Jr.,
Supt. Car Building B. & W. R. R.

Boston, June 10, 1848.

The New England Car Company have introduced their Vulcanized India Rubber Car Springs on the roads with which we are respectively connected, and we fully concur with Mr. Hale in the above opinion of their character and properties.

DAVENPORT & BRIDGES, Car Builders.
BRADLEY & RICE, Car Builders.

Boston, June, 1848.

LAWRENCE'S ROSENDALE HYDRAULIC Cement. This Cement is warranted equal to any manufactured in this country, and has been pronounced superior to Francis' "Roman." Its value for Aqueducts, Locks, Bridges, Flooms, and all Masonry exposed to dampness, is well known, as it sets immediately under water, and increases in solidity for years.

For sale in lots to suit purchasers, in tight papered barrels, by JOHN W. LAWRENCE,
142 Front-street, New York.

☞ Orders for the above will be received and promptly attended to at this office. 32 ly.

ENGINEERS' AND SURVEYERS'
INSTRUMENTS MADE BY
EDMUND DRAPER,
Surviving partner of
STANCLIFFE & DRAPER.

No 23 Pear street, below Walnut,
y10 near Third, Philadelphia.

MANUFACTURE OF PATENT WIRE ROPE and Cables for Inclined Planes, Standing Ship Rigging, Mines, Cranes, Tillers, etc, by
JOHN A. ROEBLING, *Civil Engineer*,
Pittsburgh, Pa.

These *Ropes* are now in successful operation on the planes of the Portage railroad in Pennsylvania, on the Public Slips, on Ferries, and in Mines. The first rope put upon Plane No. 3, Portage railroad, has now run four seasons, and is still in good condition.

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☞ LETTERS and COMMUNICATIONS for this Journal may be directed to the *Editor*,
HENRY V. POOR, 54 WALL ST.